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1	791	price adj range	USPAT	2003/05/28 08:45
2	1	(price adj range) same (alternate or alternative) adj3 (selection or choice or option or product or service or item)	USPAT	2003/05/28 09:16
7	32	(price adj range) and (alternate or alternative) adj3 (selection or choice or option or product or service or item)	USPAT	2003/05/28 09:32
8	0	(price adj range or spending adj limit) and (alternate or alternative) adj3 (selection or choice or option or product or service or item)	EPO; JPO; DERWENT; IBM_TDB	2003/05/28 09:34
9	2	(price adj range or spending adj limit) and (alternate or alternative)	EPO; JPO; DERWENT; IBM_TDB	2003/05/28 09:36
10	158	price adj range or spending adj limit	EPO; JPO; DERWENT; IBM_TDB	2003/05/28 09:36
11	109	(price adj range or spending adj limit) not us.pc.	EPO; JPO; DERWENT; IBM_TDB	2003/05/28 09:37

reviewed all circled

US005754850A

United States Patent [19]

Janssen

[11] Patent Number: 5,754,850

[45] Date of Patent: May 19, 1998

[54] **REAL-ESTATE METHOD AND APPARATUS FOR SEARCHING FOR HOMES IN A SEARCH POOL FOR EXACT AND CLOSE MATCHES ACCORDING TO PRIMARY AND NON-PRIMARY SELECTION CRITERIA**

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[21] Appl. No.: **763,168**

[22] Filed: **Dec. 10, 1996**

Related U.S. Application Data

[63] Continuation of Ser. No. 241,193, May 11, 1994, abandoned.

[51] **Int. Cl.**[6] **G06F 17/30**

[52] **U.S. Cl.** **395/615**; 395/201; 395/226; 395/227; 395/605; 395/925; 364/478.02; 364/709.04; 364/710.04

[58] **Field of Search** 395/605, 615, 395/201, 227, 226, 925; 364/478.02, 709.04, 710.04

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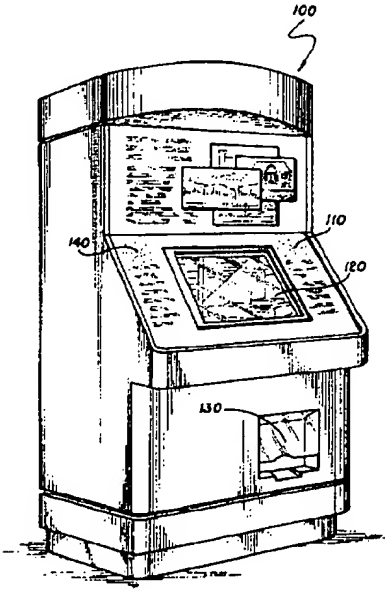
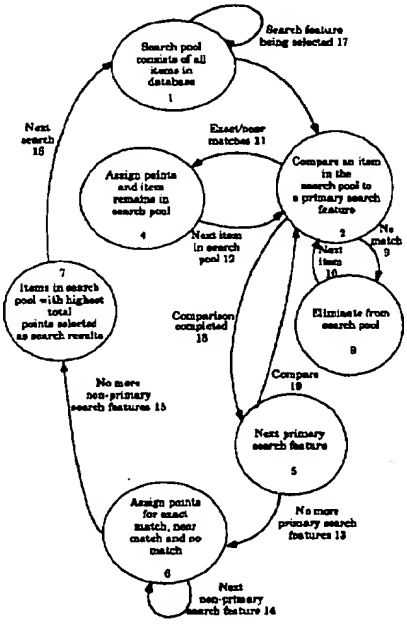
Assistant Examiner—Jean R. Homere
Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman LLP

[57] **ABSTRACT**

A method and apparatus is provided for a search system based in software running on a personal computer. The personal computer is housed in a kiosk having a touch monitor and a printer. With the search system, selection features are selected and a search based upon these search features is performed. Each item in a database is examined to determine if an item has a given search feature. These search features are categorized into primary and non-primary search features. Items neither satisfying nor closely satisfying a given primary search feature are eliminated from the search. In contrast, items not satisfying a given non-primary feature may remain in a search pool. For both primary and non-primary features, if an item in a database is an exact match to a given search feature, then that item is assigned full points. If an item closely satisfies the search feature then that item is assigned full or partial points. After completion of comparing each primary and non-primary search features with each item in the search pool, predetermined number of items remaining in the search pool with the highest total points are displayed to the user of the search system.

30 Claims, 9 Drawing Sheets





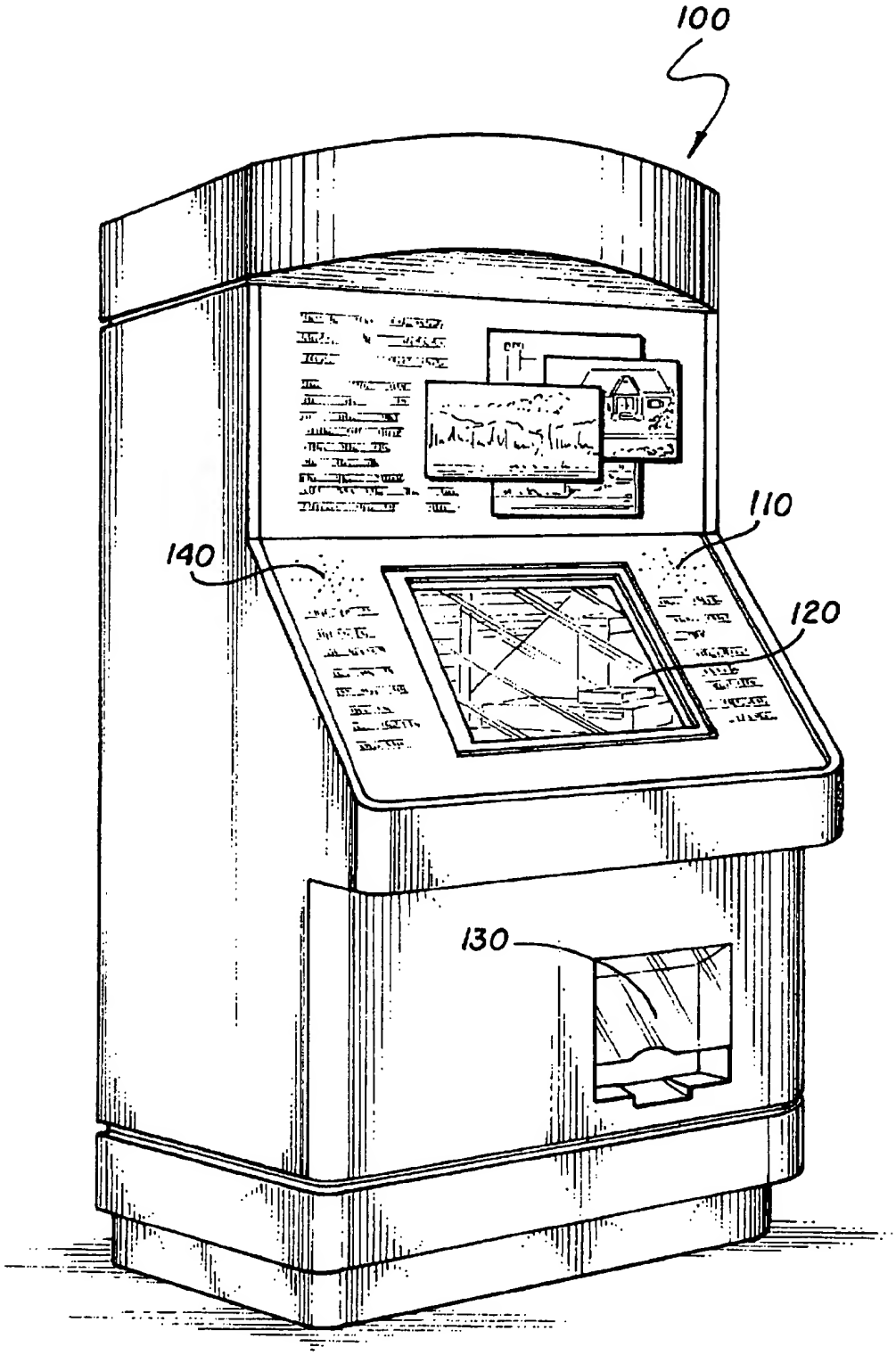


FIG. 1

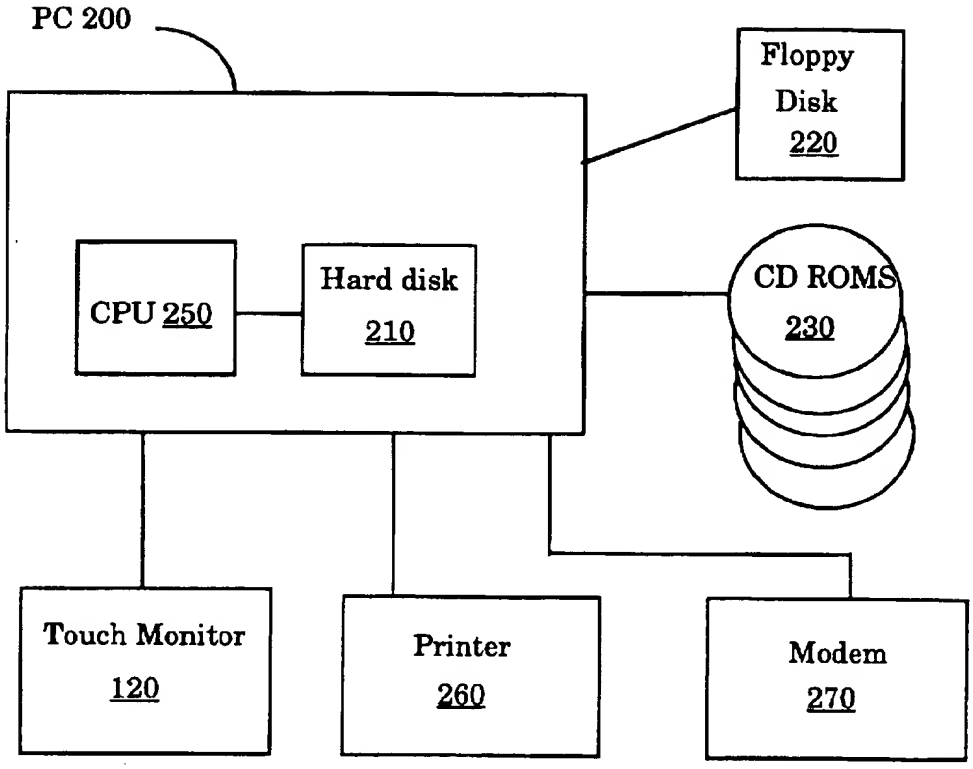

PC 200
Floppy Disk 220
CPU 250
Hard disk 210
CD ROMS 230
Touch Monitor 120
Printer 260
Modem 270

Figure 2

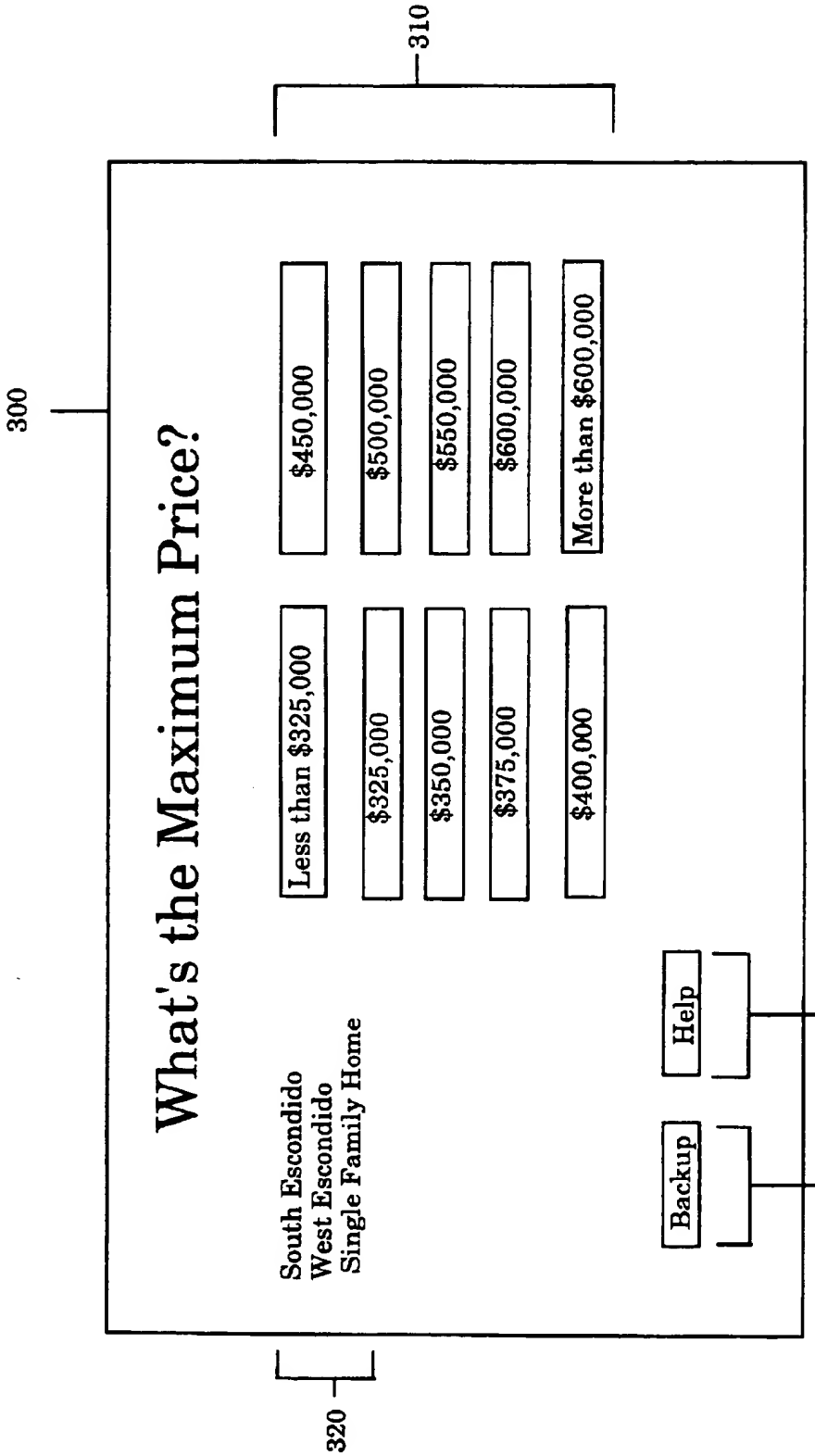

300
310
What's the Maximum Price?
Less than $325,000
$325,000
$350,000
$375,000
$400,000
$450,000
$500,000
$550,000
$600,000
More than $600,000
South Escondido
West Escondido
Single Family Home
Help
Backup
320
330
340

Figure 3

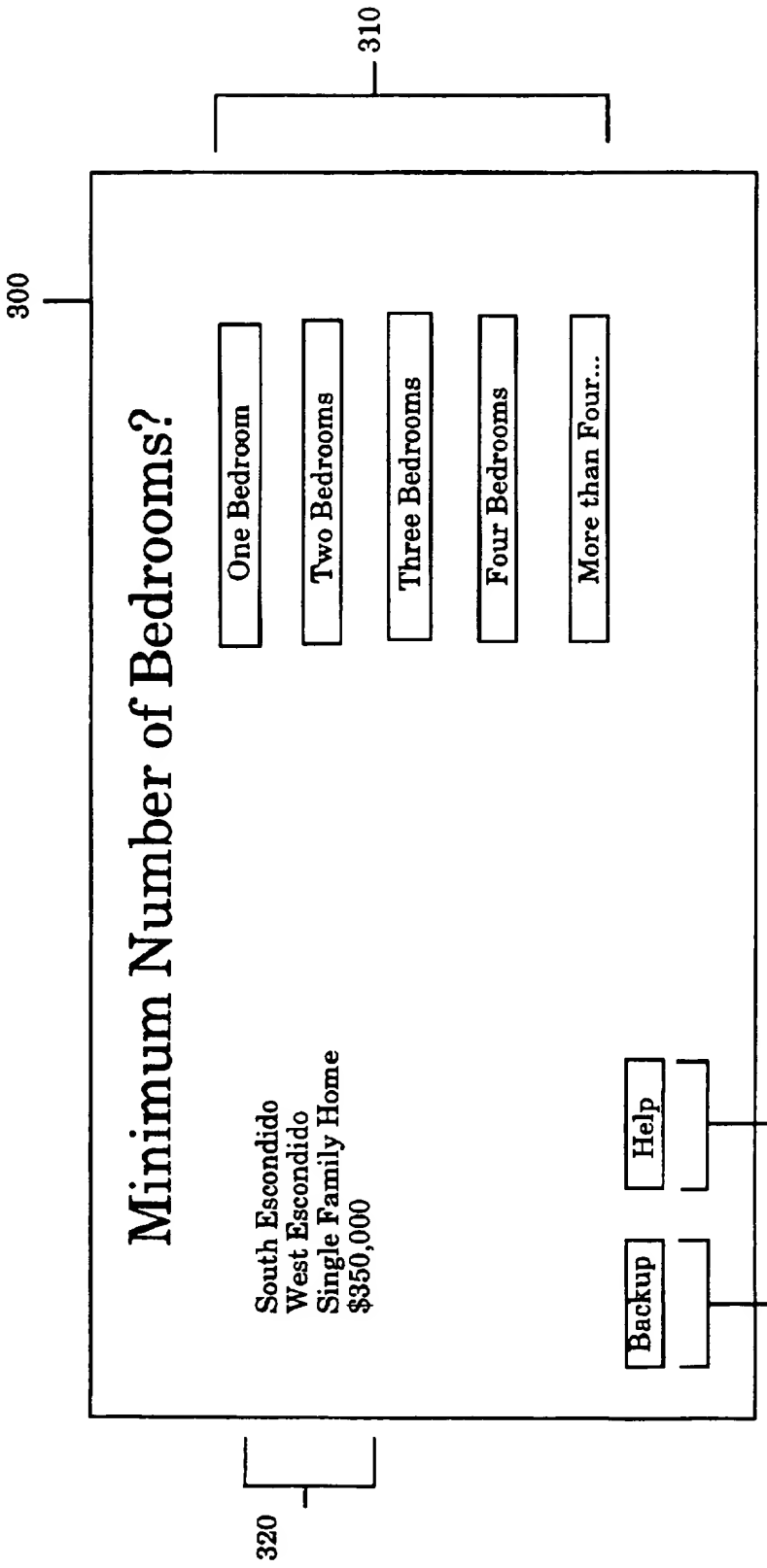

310
300
Minimum Number of Bedrooms?
One Bedroom
Two Bedrooms
Three Bedrooms
Four Bedrooms
More than Four...
South Escondido
West Escondido
Single Family Home
$350,000
Help
Backup
340
330
320

Figure 4

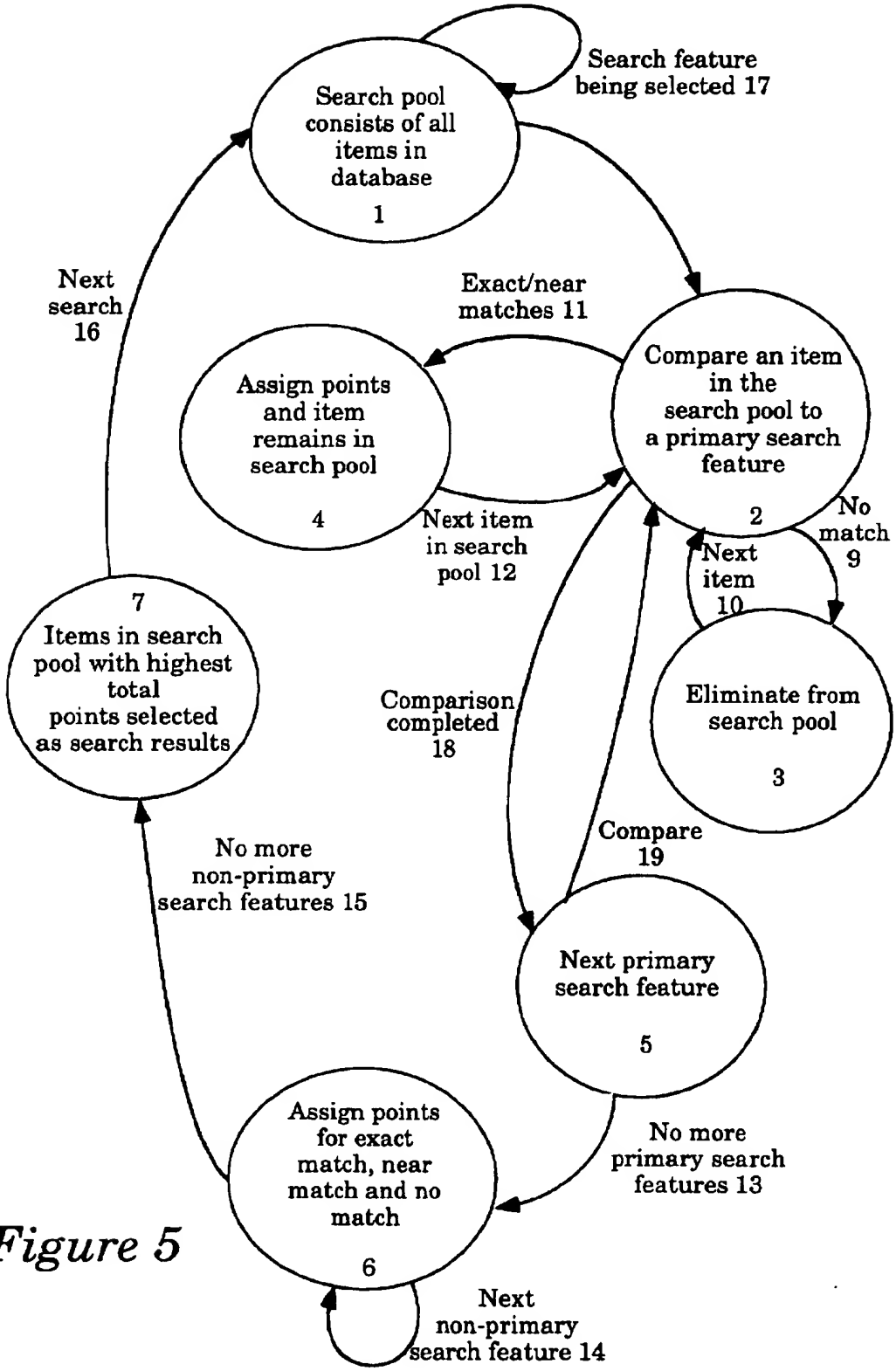

Search pool consists of all items in database 1
Search feature being selected 17
Next search 16
Exact/near matches 11
Assign points and item remains in search pool 4
Compare an item in the search pool to a primary search feature 2
Next item in search pool 12
No match 9
Next item 10
7 Items in search pool with highest total points selected as search results
Comparison completed 18
Eliminate from search pool 3
Compare 19
No more non-primary search features 15
Next primary search feature 5
Assign points for exact match, near match and no match 6
No more primary search features 13
Next non-primary search feature 14

Figure 5

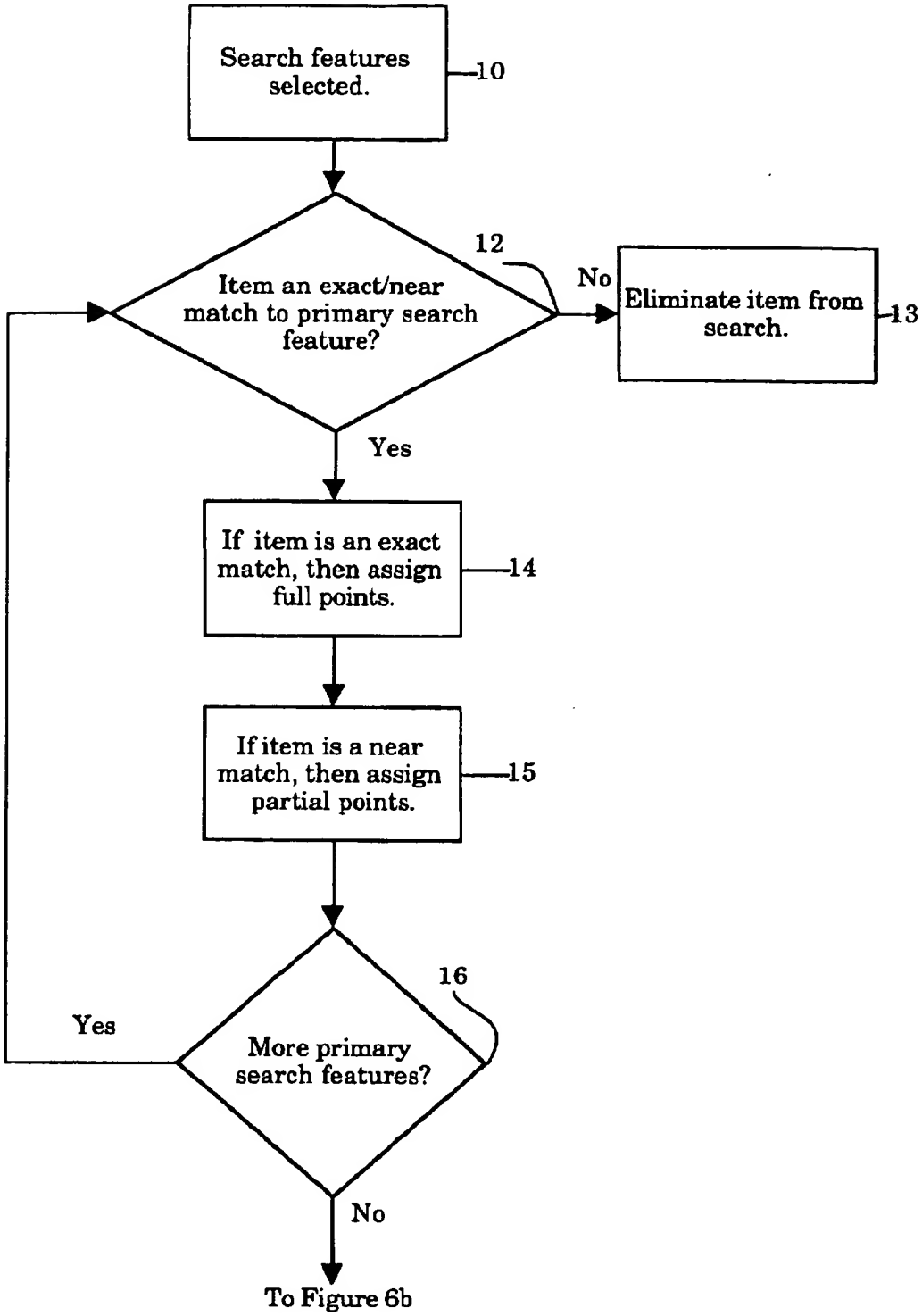

Search features selected.
10
Item an exact/near match to primary search feature?
12
No
Eliminate item from search.
13
Yes
If item is an exact match, then assign full points.
14
If item is a near match, then assign partial points.
15
More primary search features?
16
Yes
No
To Figure 6b

Figure 6a

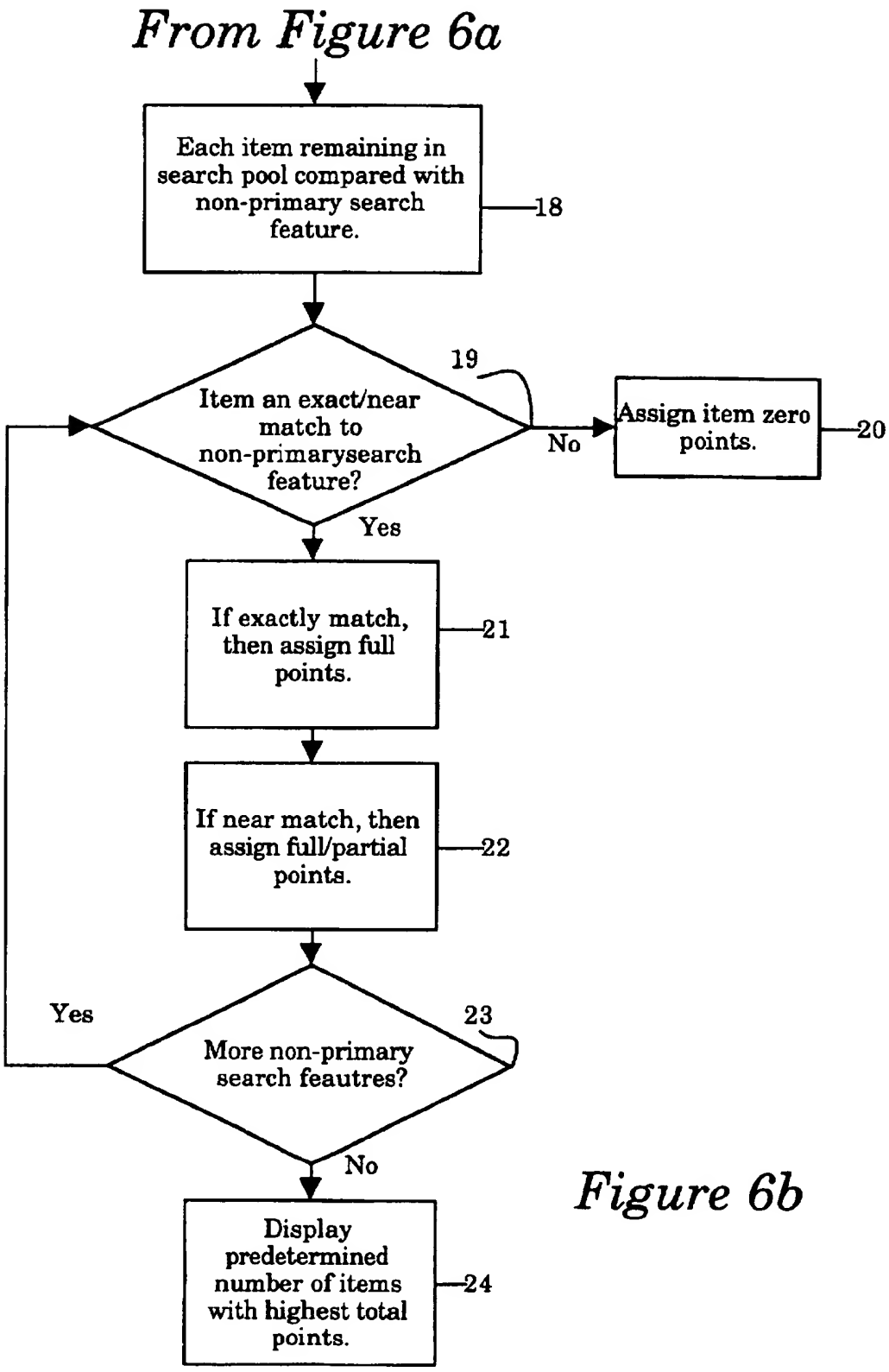

From Figure 6a
Each item remaining in search pool compared with non-primary search feature.
18
19
Item an exact/near match to non-primarysearch feature?
No
Assign item zero points.
20
Yes
If exactly match, then assign full points.
21
If near match, then assign full/partial points.
22
Yes
23
More non-primary search feautres?
No
Display predetermined number of items with highest total points.
24

Figure 6b

Point calculations

Features	Data Source	100% Compliance	Partial Compliance
30 point features			
Location			
Zip Code	KCities.DB	value of zip code is an exact match	if value of zip code is adjacent then penalty of 2 major features. if value of zip code is outside of area then eliminate from search
20 Point Features			
Number of Bedrooms	KRental.DB		
Studio Apt options	NoBeds	any value = 20 pts	
1 Bedroom	NoBeds	any value greater than .5 then 20 points	if value = .5 then 5 points
2 Bedroom	NoBeds	any value 2 or more 20 points	if value = 2 then 5 points
3 Bedroom	NoBeds	any value 3 or more 20 points	if value = 2 then 5 points.
Dual Master Bedrooms	NoBeds, DualMasters	if DualMasters = "Y" then 20 points	if NoBeds = 2 or more and DualMasters = "N" then 10 points
Number of Baths	KRental.DB		
	use value of MaxBaths	Exact match, 1/2 less, or more - 20 points	1 less = 10 points (penalty of 2 major features)

Figure 7a

Young Children	use value of YngChildren	points are assigned as follows: Play area +3 supervised play area +1 wading pool +3 supervised pool +1 (next two are mutually exclusive) Walk to daycare +3 Close to daycare +2 (next two are mutually exclusive) Walk to Elementary school +3 Close to Elementary school +2 (next two are mutually exclusive) Walk to Jr High +3 Close to Jr High +2 Planned Children's activities +3	Points can range from 0 to 20 points

Figure 7b

REAL-ESTATE METHOD AND APPARATUS FOR SEARCHING FOR HOMES IN A SEARCH POOL FOR EXACT AND CLOSE MATCHES ACCORDING TO PRIMARY AND NON-PRIMARY SELECTION CRITERIA

This is a Continuation Application of application Ser. No.08/241,193, filed May 11,1994, now abandoned.

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates to the field of computer search methods. More particularly, the present invention relates to a method and apparatus for searching a database for items satisfying specific features or closely satisfying specific features.

2. Art Background

Currently, various forms of computer searches exist including Boolean based searches. In a typical computer based search, a search is performed based on pre-selected features.

In a typical Boolean search, a search system examines a search item for exact matches and absence of matches. For items with which quantitative comparisons are possible, the items are examined to determine whether the items are greater than or less than a given threshold of a search feature. A text based search may examine the number of occurrences of a certain word in a text or character or characters in a text.

More specific examples of computer searches currently used include NEXUS® which utilizes a form of a tiered search. A user of the NEXUS® system initiates a search by selecting a set of search features. The NEXUS® system searches for items in a search pool which are exact matches with the search features. Once this first level of search is concluded, the user has the option to narrow the search by selecting additional search features. A new search pool composed of the previously selected items is searched using the new set of search features. This process may be repeated until a predetermined number of items are selected.

Another example of a computer search includes the multiple listing system (MLS) typically used by real estate agents searching for client desired homes. A database is used which contains homes for sale listed by agents and placed in the MLS.

The search method utilized in the MLS typically examines exact matches. For example, given a selection search feature of homes with a price range from $140.000 to $150.000, the MLS selects homes with prices within this range. However, the MLS does not select homes which may be a little under or a little over the price range. Therefore, the search range is absolute. In addition, if a real estate agent is searching for a home located in a specific zip code, a search performed by the MLS discards any home in the search pool which is located outside of the specified zip code, including homes which are only one block away from the specific zip code.

Although the MLS system searches and selects homes which are exact matches to the selected search features, a typical potential home buyer will accept homes which closely satisfies the selected search features. This may be especially true where few if any homes satisfy all of a potential homebuyer's desired search features.

The above described prior art computer search methods typically produce items in a search pool which are exact matches to the search features as the search result. In a search where few if any items in a search pool satisfy a given set of search features, and where a user of the search system accepts items in a search pool which are close matches to the search features, such as for users searching for homes for sale, method and apparatus for allowing a computer search system which produces a search result comprising items from a search pool which are exact matches and close matches are desired.

BRIEF SUMMARY OF THE INVENTION

Method and apparatus for a kiosk search system are provided. In accordance with one aspect of the present invention, a kiosk comprises a touch monitor, a printer, a printer output portion, a computer, a search software running on the computer and various storage mediums including CD ROMs, a hard disk and floppy disks. Databases containing items to be searched are stored in the storage mediums. CD ROMs are replaced at periodic intervals to update the databases. Further, modems and wireless modems are utilized to update the databases.

The kiosk of the present invention displays a plurality of selection screens on the touch monitor. A user touches an icon representing a selection as displayed on the touch monitor. Once a user has selected a predetermined number of search features, a search is performed based upon the selected search features.

At the completion of a search cycle, various screens illustrating information on the items in a search result are displayed to the user. At the user's option, the kiosk search system of the present invention prints out information on a user selected number of search result items.

In accordance with another aspect of the present invention, a search process begins with a selection of a number of search features. A search is performed using the search features for items in a database satisfying or closely satisfying the search features. Once a number of search features are selected, each item in the database is compared to a set of primary search features. Items neither satisfying nor closely satisfying a primary search feature are eliminated from further search. An item which satisfy or at least closely satisfy a primary search feature is assigned a predetermined number of points. The items in the database which are not eliminated from further search remain in a search pool.

The items remaining in the search pool are compared to a set of non-primary search features. Further, the items are assigned predetermined points for satisfying or closely satisfying each of the non-primary search features.

After each of the search features are examined in each of the items in the database, points assigned to each item in the search pool are totaled. A predetermined number of items in a search pool with the highest total points are selected as the search result. The items are sorted such that the predetermined number of items selected as search results are displayed to the user of the search system in the order of the item with the highest points.

Unlike the traditional search methods utilizing Boolean based search methods which examine for exact matches, the search method of the present invention considers "near" matches as well as exact matches. For example, an item in a search pool which fully satisfies a given non-primary search feature is given the predetermined full points. An item which closely satisfies a given search feature (a near match), may also be assigned a predetermined number of points. If an item in a search pool neither satisfies nor closely satisfies a given search feature, such item is assigned zero

points for the particular non-primary search feature. Further, for some instances of near matches, an item in a search pool may be given full points for a search feature if the item closely satisfies that given search feature.

Further, the search system of the present invention may be utilized in searches for schools, doctors, cars, apartments, vacation packages, lawyers and CPA's. In addition, the search system of the present invention may be used on on-line services, interactive televisions and on stand alone computers.

In sum, the search system of the invention may be utilized for a search through a large group of items in a search pool, with a significant number of search features being selected. In addition, the search system is especially useful where few if any records satisfy all of the search features selected and where the user of the search system accepts close matches as part of the search result.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates an exemplary kiosk search system of the present invention.

FIG. **2** is a block diagram of the apparatus of the search system of the present invention.

FIG. **3** is an exemplary display screen of the search system of the present invention.

FIG. **4** is an exemplary display screen of the search system of the present invention.

FIG. **5** is a state diagram illustrating the search method of the present invention.

FIGS. **6***a* and **6***b* are flow charts illustrating steps of the search method of the present invention.

FIGS. **7***a* and **7***b* are charts illustrating an exemplary point assignment method for the search system of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Apparatus and methods for a kiosk search system are disclosed.

On the kiosk search system of the present invention, a number of search features are selected and a database is searched. An item is assigned full points for fully satisfying a search feature, and assigned full or partial points for closely satisfying a search feature. The search features are either categorized as primary search features or as non-primary search features. A primary search feature must be either satisfied or at least be closely satisfied by an item or the item is discarded from the search pool. On the other hand, a non-primary search feature may not be satisfied by an item but the item may still remain in the search pool. Upon completion of the point assignment based on each search feature for each item in the search pool, a predetermined number of items with the highest total points are selected as the search result. The number of items to be selected may be predetermined by the user or fixed in the search system.

FIG. **1** illustrates an exemplary kiosk search system of the present invention. A kiosk search system **100** has a touch monitor **120**, a laser jet printer output portion **130**, and audio output portions **110** and **140**. The touch monitor **120** has a resolution of 800×600 screen display. Inputs from a user are received by touch monitor **120**. Given a selection screen, a user may be presented with a number of search features to choose from. A user simply touches the icons associated with the search features to make a selection.

FIG. **2** is a block diagram of the search system of the invention. The search system of the invention is embodied in a software stored in hard disk **210** of personal computer (PC) **200**. PC **200** is housed in kiosk search system **100** illustrated in FIG. **1**. A database with items to be examined and data for individual screen displays are stored in three different storage mediums, specifically, hard disk **210**, floppy disks **220** and CD ROMs **230**. One or a plurality of CD ROMs **230** may be replaced during periodic intervals to update the database. Modem **270** or a wireless modem may also be utilized to update the database.

CD ROMs **230** may contain both video text as well as audio data. PC **200** produces occasional voice prompts to the user to prompt inputs. Audio data are output to a user through speakers **110** and **140** of kiosk search system **100** illustrated in FIG. **1**.

Touch monitor **120** displays data retrieved from multiple sources, including floppy disks **220**, hard disk **210** and CD ROMs **230**. Data displayed on the screen is created by overlaying data over existing screen data and/or image. In an exemplary embodiment, the search system used on PC **200** is written in Windows® API. The picture images are stored in the JPEG standard photographic compression format. The search system is driven by CPU **250** of PC **200**. Upon completion of each search cycle, various display screens containing information on items from the search result is displayed to the user. At the option of the user, information on one or more of the items from the search result may be printed on printer **260**, which outputs a printout to the user through printer output portion **130** (illustrated in FIG. **1**).

FIGS. **3** and **4** illustrate an exemplary selection screen for a home search embodiment of the present invention. A user of a home search system selects search features from the displayed selection screens. In FIG. **3**, a user is asked what is the maximum price he or she is willing to pay for a potential home. The selection of maximum prices are displayed within rectangular borders. These rectangles represent selection icons **310** which the user touches to select a given maximum price. Portion **320** on display screen **300** lists the search features selected from previous selection screens. Backup icon **330** allows the user to backup to the previous screen and help icon **340** displays a help screen which directs the user on how to use the search system.

FIG. **4** illustrates an exemplary selection screen following the selection screen of FIG. **3**. The user is asked the minimum number of bedrooms he or she wants in a home. Selection icons **310** displays different number of bedrooms. As compared to portion **320** of FIG. **3**, portion **320** of FIG. **4** has an additional entry of $350,000. The additional entry indicates that the user selected $350,000 as the maximum price in display screen **300** of FIG. **3**.

Some selection screens are displayed in a fixed sequence. Other selection screens are displayed according to a user's response to a previously displayed selection screen. For example, in the selection screen of FIG. **3**, a user may select the "More than $600,000" icon as their choice of a maximum price for a potential home. A subsequent selection screen may include a question regarding whether or not the user wants a detached servants' quarters included in the home he or she would like to purchase. This selection screen may be displayed only to a user who has selected a maximum home purchase price of over $500,000, for example, in the selection screen of FIG. **3**. Further, a selection screen asking the maximum price a user is willing to pay for a home, may be dependent on a selection screen asking a user where he or she wants to live. The price range of homes

located in the area selected by the user are displayed as selection choices in a selection screen asking the maximum home purchase price.

FIG. **5** is a state diagram illustrating the search method of the present invention. In state **1**, all items in a database to be searched are considered to be in a search pool. The process remains in state **1** while search features are being selected by a user (loop **17**). The search begins when all desired search features are selected by the user (transition **8**). In state **2**, each item in the database is compared to a given primary search feature. If an item in the database satisfies or closely satisfies the given primary search feature (transition **11**), the item is assigned points in state **4**. In state **3**, if an item in the search pool neither satisfies nor closely satisfies a given primary search feature, the item is eliminated from the search pool and from further search.

Each item in the search pool is compared to the same primary search feature (transitions **10** and **12**). When all items in the search pool are compared to the given primary search feature (transition **18**), the next primary search feature is retrieved in state **5**. In state **2**, this primary search feature is compared to each item remaining in the search pool in state **2** (transition **19**). After each primary feature is compared to the items in the search pool, each non-primary search feature is compared to each item remaining in the search pool (transition **13**). In state **6**, predetermined number of points are assigned to items for satisfying or closely satisfying a given non-primary search feature (transition **14**). When all non-primary search features are compared to each item remaining in the search pool (transition **15**), a predetermined number items in the search pool with the highest total points are selected as the search results.

FIGS. **6***a* and **6***b* are general flow charts illustrating the steps followed by the search method of the present invention. In step **10**, a user selects a number of search features as desired. Primary search features are examined before non-primary search features. In step **12**, an item in a database is examined to determine if the item is either an exact match or a near match to a primary search feature. In other words, an item is examined to determine whether an item satisfies or closely satisfies a given primary search feature.

In step **13**, if the item being examined neither fully satisfies nor closely satisfies a given primary search feature, the item is eliminated from the search pool. On the other hand, if an item being examined fully satisfies a given primary search feature then in step **14**, the item is given predetermined full points. If the item does not satisfy the given primary search feature but is a close match to the given primary search feature, then in step **15**, the item is assigned a predetermined number of either full or partial points.

The process of examining each item in the database is repeated for a given primary search feature. In step **16**, if more primary search features exist, then the process is repeated and each item in the database is examined for each additional primary search features.

FIG. **6***b* is the continuation of the general flow chart illustrated in FIG. **1***a*. In step **18**, each item remaining in the search pool after being compared to all the primary search features is examined to determine whether or not the item satisfies the user selected non-primary search features. In step **19**, an item is examined to determine whether or not the item satisfies or closely satisfies a given non-primary search feature. If the item does not satisfy a given non-primary search feature, then in step **20** the item is given zero points for that particular non-primary search feature.

In step **21**, if the item is an exact match, then the item is assigned a predetermined number of full points for satisfying the non-primary search feature. In step **22**, if an item is a near match, then the item is given a predetermined number of full or partial points for closely satisfying the specific non-primary search feature. The examination of an item in a search pool for whether or not the item satisfies, closely satisfies, or does not satisfy a given non-primary search feature is repeated for all the items remaining in the search pool.

In step **23**, if there are additional non-primary search features, each item in a record is examined for the remaining additional non-primary search features. Finally, in step **24**, if all the non-primary search features are compared to the items remaining in the search pool, then a predetermined number of items in the search pool with the highest total points are displayed to the user as the search result.

FIGS. **7***a* and **7***b* illustrate how points may be assigned to certain selected search features for exact matches and close matches for a home rental search embodiment of the invention. The first column illustrates search features which may be chosen by a user during the search including various rental home features such as location, rental amounts and number of bedrooms. In the second column, sources of data for the various features for a given item is given. In the third column, conditions for a 100% satisfaction of a given feature are described. Finally, in the fourth and final column, conditions for partial compliance to a given feature are illustrated.

In the first entry to the chart in FIG. **7***a*, location is listed as a zip code. The zip code feature is considered to be a primary search feature and given the highest potential points since the feature is typically one of the most important features to a potential home renter. Once a user of a home rental search system of the invention selects potential locations where the user may want to rent homes, such locations are compared to properties for rent in a search pool by the zip codes.

The search system of the invention compares the selected zip code to the zip code of each of the homes for rent stored in a database, KRENTAL.DB. A database, KCities.DB, contains zip codes adjacent to the selected zip code. The zip code of each home in KRENTAL.DB is compared against the selected zip code as well as against the adjacent zip codes in KCities.DB. If a home for rent satisfies this zip code feature by exactly matching the zip code selected, then that specific rental home is in 100% compliance to this location feature and is assigned 30 points. On the other hand, if the zip code of the rental home being compared is only adjacent to the selected zip code, then only a partial compliance is satisfied. The points assigned for a partial compliance in this case is the full potential points minus a predetermined penalty points such as 20 points. If the zip code of the rental home being compared to the selected zip code is neither an exact match nor adjacent to the selected zip code, then the corresponding rental home is eliminated from the search pool.

Under the number of bedrooms feature, if the selected number of bedrooms equals that of a studio apartment then no matter what number of bedrooms a given rental home in a search pool has, a given rental home is deemed to be under 100% compliance and is assigned the full 20 points.

If the user selects one bedroom rental property, then any rental property in the search pool with a number of beds greater than 0.5, is under 100% compliance and is assigned the full 20 points. Any rental property with a number of

bedrooms equaling to 0.5, such as studio apartment, is under partial compliance with the selected one bedroom feature and is assigned 5 points.

If a user selects a two bedroom rental property, then any rental property in the search pool with the number of bedrooms equaling two or more is under 100% compliance with the selected two bedroom feature and is assigned 20 points. Any rental property with only one bedroom is under partial compliance with the selected two bedroom feature and is assigned 5 points. If the user selects a three bedroom rental property, then any rental property in a search pool with three or more bedrooms is under 100% compliance with the selected three bedroom feature and is assigned 20 points. Any rental property in the search pool with only two bedrooms are awarded 5 points.

If a user selects a rental property with dual master bedrooms, then any rental property in a search pool with dual master bedrooms is under 100% compliance with the selected dual master bedrooms feature and is assigned 20 points. Any rental property in the search pool with two bedrooms or more and no dual master bedrooms is under partial compliance and is assigned 10 points.

Under the number of baths feature, the value of MaxBaths in KRENTAL.DB is used. MaxBaths is a field in the KRENTAL.DB indicating the number of bathrooms each rental property in KRENTAL.DB has. 100% compliance is attained and full points are assigned to any rental property which has as the value for MaxBaths the same exact number of bathrooms selected by the user. Full points are also assigned if a rental property has more bathrooms or one-half less than the number of bathrooms selected by the user. Partial compliance is attained and 10 points is assigned to any rental property in the search pool with a MaxBaths value which is only one less than the number of bathrooms selected by the user.

Table A is a chart illustrating an exemplary point calculation method and prioritization for a rental home search embodiment of the present invention. The chart illustrates location and price as primary search features for a rental home search embodiment. Selection of a location is typically based upon the locations of work place, child care facilities and family proximity. Range of price is typically selected by and based upon income. Properties outside of the selected location and price range are discarded from the search pool. Since location and price in this case are assigned as being primary search features, these search features are assigned highest potential points out of all the other search features. The remaining search features with lesser potential full points are the non-primary search features.

Next highest potential points are assigned to search features including number of bedrooms and baths, corporate apartments, whether pets are allowed, whether amenities for handicapped people are available, whether elevators, covered parking, assigned parking and features for young children and senior citizens are provided. These search features are typically determined by the number of people intended to live in the home, the family needs such as for children, handicapped people and senior citizens and current possession of pets. Further, parking is rated in this group because, automobiles are typically a renter's most expensive possession.

The next priority group include features for planned activities, swimming pool, tennis court, air conditioning, garages, gated property, gated parking, smaller apartment complex, proximity to the ocean and walking distance to public transportation. The search features in this priority group describe lifestyle preferences which may be more difficult to satisfy if these features are not part of the rental property features.

Finally a last priority group include features which are not necessary but may still be desired. These search features are the type of features of rental properties which enhance the attractiveness of the rental property community but does not cause a potential renter to eliminate the property from the search pool. Such search features may include leasing period, washer/dryer, refrigerators, dishwasher, central heat and air, newer carpets, on site laundry, furnished apartment, fitness center, newer property, military discounts, moderate discount, patio/balcony, extra storage, clubhouse, courtesy patrol, home alarm system, monitored home alarm system, visitor intercom system, sauna, spa, basketball court, racquetball court, pool tables, quiet property, fireplace and scenic view.

In addition to the above described prioritization, a user may change the priorities of the search features to more closely correspond to the user's value system. Certain lower priority search features may become higher priority search features and hence be assigned higher points. The user may enable this self tailored prioritization by simply touching a particular search feature displayed on the touch monitor of the kiosk search system of the present invention more than once. By touching the particular search feature more than once, the user is indicating that the particular search feature is to be given higher priority than the other selected search features.

Table B is a chart illustrating an exemplary record format for each home in a database for a home rental embodiment of the present invention. KRENTAL.DB is a database used for searching. KRENTIF.DB is a database used to display additional information on certain rental homes. These databases are created from three Administration Rental Tables: RENTALS.DB which contains basic information regarding a given apartment community, RENTPROF.DB which contains profile information about a given apartment community and RENTUNIT.DB which contains profile information about specific rental unit types. The first column of the chart describes each field name of KRENTAL.DB, and the second column describes the Administration Rental Table from which the value for the particular KRENTAL.DB field is retrieved. The third column in the chart describes which field in the particular Administration Rental Table contains the value for the corresponding KRENTAL.DB field. The fourth and final column of the chart describes how to interpret the value stored in each field of the particular Administration Rental Table.

The above described search system of the present invention may be utilized in searches involving but not limited to searches for home loans, schools, doctors, cars, apartments, vacation packages, lawyers and CPA's. In addition, the search system of the present invention may be utilized on on-line services, interactive television and on stand alone computers.

What was described is an apparatus and method for a kiosk search system for searches where few if any items in a search pool satisfy all of the selected search features and/or where the user of the search system accepts as search results items in a search pool which come close to satisfying one or more of the selected search features.

While certain exemplary embodiments have been described in detail and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative of and not restrictive on the broad invention and that this invention is not limited to the specific arrangements and constructions shown and described.

TABLE A

Point Calculations

Features	Data Source	100% Compliance	Partial Compliance
30 point features			
Location			
Zip Code	KCities.DB	value of zip code is an exact match	if value of zip code is adjacent then penalty of 2 major features. if value of zip code is outside of area then eliminate from search
Rental Amount Range			
from −10% to +10% of specified amount	KRental.DB MinPrice	Within range	
From −11 to −20 to +11 to 25	KRental.DB MinPrice	Within range	
Outside of range			
20 Point Features			
Number of Bedrooms	KRental.DB		
Studio Apt options	NoBeds	any value = 20pts	
1 Bedroom	NoBeds	any value greater than .5 then 20 points	if value = .5 then 5 points
2 Bedroom	NoBeds	any value 2 or more 20 points	if value = 1 then 5 points
3 Bedroom	NoBeds	any value 3/ or more 20 points	if value = 2 then 5 points
Dual Master Bedrooms	NoBeds DualMasters	if DualMasters = "Y" then 20 points	if NoBeds = 2 or more and DualMasters = "N" then 10 points
Number of Baths	KRental.DB		
Exact Match	use value of	Exact match,	1 less = 10
or ½ less	MaxBaths	½ less, or more - 20 points	points (penalty of 2 major features)
Cats Allowed	use value of Cat	if 'yes' will be 20 points	if on approval then 20
Dogs Allowed	use value of Dog	if Yes will be 20	if on approval then 15
Handicap	use value of Handicap	if Yes will be 20 based on Specifically states Handicap MaidService Emergency 24 hr call Monotored Alarm Elevators	Points can range from 0 to 20
Elevators	use value of Elevators,	if Yes or if single story building will be 20	
Covered Parking	use value of CoveredParking	if Underground, Garage or covered will be 20 points	
Assigned Parking	use value of AssignedParking	if AssignedParking or Garage then 20 points	
Young Children	use value of YngChildren	points are assigned as follows: Play area +3 supervised play area +1 wading pool +3 supervised pool +1 (next two are mutually exclusive) Walk to daycare +3 Close to daycare +2 (next two are mutually exclusive)	Points can range from 0 to 20 points

TABLE A-continued

Point Calculations

Features	Data Source	100% Compliance	Partial Compliance
		Walk to Elementary school +3 Close to Elementary School +2 (next two are mutually exclusive) Walk to Jr High +3 Close to Jr High +2 Planned Children's activities +3	
Senior Living	use value of Sr Living	points assigned as follows: Seniors Only +5 points 24 hr Emergency Call Services +1 Maid Services +1 Scheduled transportation +2 Organized Activites +2 Monitored Home Alarm +1 Sr Center-Walk to +2 Sr. Center-Close to +1 Sr. Discount +2	Can range from 0 to 15 (could actually exceed 15 if all items existed however 15 is maximum assignment)
Corporate Apartments	use value of CorpApt	Point assignments as follows: Complex specifically states "Corporate Apts available" Furnished Apartments Maid Service Conference Area available	range can be from 0 to 20 points.
15 point Features			
Planned Activities	use value of PlannedActive	Point assignment is as follows: Social Events (Happy hour, movie nights, holiday celebrations) +3 Sports Events (softball, fitness training, walking clubs, team sports) +3 Business Network +2 Community Gardening +2 Volunteer Group +2 Educational +3 Scheduled Transportation +3	range can be from 0 to 15. (actual point assignment could exceed 15 if all items existed, however 15 is the maximum)
Swimming Pool	use value of Pool	if greater than 0 then 15 points	
Tennis Court	use value of Tennis	if greater than 0 then 15 points	
Air Conditioning	use value of AirCondition	if Central Air then 15 points,	if Air Conditioning (not central) then 12 points
Gated Property	use value of GatedProp	if exists then 15 points	
Gated Parking	use value of GatedParking	if Gated Property or Gated Parking then 15 points. If Garage Attached in RentProf then 15 points	
Garage	use value of Garage	if included or available then 15 points	
Smaller Property	use value of SmallerProp	if 20 units or less then 15 points,	if 40 units or less then 5 points
Close to Ocean	use value of OceanClose	If walking distance then 15 points	if close to then 10 points
Walk to Public	use value of	if walking distance	0 points

TABLE A-continued

Point Calculations

Features	Data Source	100% Compliance	Partial Compliance
Transporation 5 Point Features	PublicTransport	then 15 points	
Month to Month lease period	use value of Monthly	if yes then 5 points	
6 Month lease	use value of 6Months	if yes then 5 points	
12 Months lease	use value of 12Months	if yes then 5 points	
Vacation rental	use value of Vacation	if yes then 5 points	If vacation is selected as the lease period and the value of VACATION is 0 then eliminate from the batch
Weekly	use value of Weekly	if yes then 5 points	if weekly is selected and the value of Weekly is 0 and the value of Monthly 0 then eliminate from the batch
Washer/Dryer (included)	use value of WasherDryer	if yes then 5 points	
Washer/Dryer Hookups	use value of Washer/Dryer Hookups	if yes then 5 points	
Refrigerator	use value of Refrigerator	up to 5 points based on Refrigerator-Available (2)or RefrigeratorIncluded(5)	
Dishwasher	use value of Dishwasher	if yes then 5 points	
Central Heat & Air	use value of CentralH&A	if yes then 5 points	
Newer Carpets	use value of NewerCarpet	if Carpet Age 2yrs or less then 5 points	
On-Site Laundry	use value of OnSiteLdy	if greater than 0 then 5 points, or if Washer/Dryer then 5 points	
Furnished Apartment	use value of Furnished	if yes then 5 points	
Fitness Center	use value of Fitness	if greater than 0 then 5 points	
Newer Property	use value of NewerProp	if 0–5 years then 5 points	
Military Discounts	use value of MilitaryDisc	if yes then 5 points	
Moderate Income Discounts	use value of ModerateDisc	if yes then 5 points	
Patio/Balcony	use value of PatioBalc	if yes then 5 points	
ExtraStorage	use value of ExtyraStorage	if storage on balcony/patio or parking then 5 points	
Clubhouse	use value of Clubhouse	if greater than 0 then 5 points	
Courtesy Patrol	use value of Patrol	if yes then 5 points	
Home Alarm System	use value of HomeAlarm	if yes then 5 points	
Monitored Alarm System	use value of MonitoredAlarm	if yes then 5 points	
Intercom System (visitor)	use value of Intercom	if yes then 5 points	
Sauna	use value of sauna	if yes then 5 points	
Spa	use value of Spa	if greater than 0 then 5 points	
Basketball Court	use value of Basketball	if greater than 0 then 5 points	
Racquetball Court	use value of Racquetball	if greater than 0 then 5 points	

TABLE A-continued

Point Calculations

Features	Data Source	100% Compliance	Partial Compliance
Pool Tables	use value of PoolTables	if greater than 0 then 5 points	
Quiet Property	use value of QuietProp	if yes then 5 points	
Fireplace	use value of Fireplace	if yes then 5 points	
Scenic View	use value of ScenicView	if any defined view exists then 5 points	

TABLE B

The Rental Kiosk tables of KRENTAL.DB (used for searching) and KRENTINF.DB (used for More Info display) are created from three Administration Rental Tables:
RENTALS.DB (basic information about the apartment community)
RENTPROF.DB (profile information about the apartment community)
RENTUNIT.DB (profile information about the specic rental unit types)

KRENTAL Field	Admin Table	Admin Field	Conversion Instructions
RentalID	RENTUNIT	RentalID	use value (key field - 7 characters)
UnitID	RENTUNIT	UnitID	use value (key field - 1 character where S = Studio, 1 = 1 Bedroom, 2 = 2 Bedroom, 3 = 3 Bedroom, D = Dual Master Bedroom)
MType	RENTALS	AdType	use value (ST, SC, or SP where ST = Standard Ad SC = Showcase Ad SP = Spotlight AD)
BannerTitle	RENTALS	Banner	Decode value of Banner and use full name
RentalType	RENTALS	RentalType	use value (A, C, H where A = Apartment C = Condo or townhome H = Single Family Home)
ComplexName	RENTALS	ComplexName	use value
ManagedBy	RENTALS	ManagedBy	use id value to lookup in RENTMGR. If RENTMGR.MgrType = 'P' (professional) then insert Name1 value otherwise leave blank.
Address	RENTALS	Address	use value
City	RNNTALS	City	use value
ZipCode	RENTALS	ZipCode	use value
State	RENTALS	State	use value
Phone	RENTALS	OfficePhone	use value
Fax	RENTALS	OfficeFax	use value
HoursMonPri	RENTALS	HoursMonFri	use value
HoursSat	RENTALS	HoursSat	use value
HoursSun	RENTALS	HoursSun	use value
Street	RENTALS	Street	use value
CrossStreet	RENTALS	CrossStreet	use value
MinRent	RENTUNIT	MinRent	use value
MaxRent	RENTUNIT	MaxRerrt	use value
NoBeds	RENTUNIT	(derived from UnitID)	if S then value = 1, if 1 then value = 1, if 2 then value = 2, if 3 then value = 3,if D then value = 2
DualMasters	RENTUNIT	(derived from UnitID)	if D then value = Y
MinBaths	RENTUNIT	MinBaths	use value
MaxBaths	RENTUNIT	NoBaths	use value
Monthly	RENTPROF	Monthly	if Monthly = Y then value = 5 else value = 0
6Month	RENTPROF	6Month	if 6Month = Y then value = 5 else value = 0
12Month	RENTPROF	12Month	if 12Month = Y then value = 5 else value = 0
Vacation	RENTPROF	Vacation	if Vacation = Y then value = 5 else value = 0 (property will be eliminated from the search batch if Vacation is selected and this value is zero)
Weekly	RENTPROF	Weekly	if Weekly = Y then value 5 else value = 0 (property will be eliminated from the search batch if Weekly is selected and this value is zero)
YngChildren	RENTPROF	ChildWadinPool	Points are accumulated depending on the sum

TABLE B-continued

The Rental Kiosk tables of KRENTAL.DB (used for searching) and KRENTINF.DB (used for More Info display) are created from three Administration Rental Tables:
RENTALS.DB (basic information about the apartment community)
RENTPROF.DB (profile information about the apartment community)
RENTUNIT.DB (profile information about the specic rental unit types)

KRENTAL Field	Admin Table	Admin Field	Conversion Instructions
		ChildWadingSuper	of features include:
		ChildPlayArea	if ChildWadingPool then +3
		ChildPlaySuper	if ChildWadingSuper then +1
		ChildDayCareClos	if ChildPlayArea then +3
		ChildDayCareWalk	if ChildPlaySuper then +1
		ChildElemSchClose	(the next two are mutually exclusive)
		ChildElemSchWalk	if ChildDayCareClose then +2
		ChildJrSchClose	if ChildDayCardWalk then +3
		ChildJrSchWalk	(the next two are mutally exclusive)
		ChildPlanActive	if ChildElemSchClose then +2
			if ChildElemSchWalk then +3
			(the next two are mutally exclusive)
			if ChildJrSchClose then +2
			if ChildJrSchWalk then +3
			ChildPlanActive +3
			Highest Point value can be 20 points
Seniors	RENTPROF	SeniorsOnly	Points are accumulated depending on the sum
		SeniorCtrClose	of the features found:
		SeniorCtrWalk	if SeniorsOnly then +5
		Senior24hrCall	(the next two are mutually exclusive)
		SeniorDiscount	if SeniorCtrClose then +1
		MonitoredAlarm	if SeniorCtrWalk then +2
		MaidService	if Senior24hrCall then +1
		PlannedTransport	if SeniorDiscount then +2
		PlannedSocial	if MonitoredAlarmn then +1
			if MaidService then +1
			if PlannedTransport then +2
			if PlannedSocial then +2
			Highest point value can be 15 points . . . if all values existed the accumulated points could exceed 15, cut off at 15
PlannedActive	RENTPROF	PlannedBusNetwork	Points are accumulated from the sum of
		PlannedEducation	features found:
		PlannedGardening	if PlannedBusNetwork then +2
		PlannedSocial	if PlannedGardening then +2
		PlannedSports	if PlannedSocial then +3
		PlannedTransport	if PlannedSports then +3
		PlannedVolunteer	if PlannedTransport then +3
			if PlannedVolunteer then +2
			Highest point value can be 15 points
Cat	RENTPROF	CatOK	if CatOK = "Y" then 20 points
		CatApproval	if CatApproval = "Y" then 15 points
Dog	RENTPROF	DogOK	if DogOK= "Y" then 20 points
		DogApproval	if DogApproval = "Y" then 15 points
NewerProp	RENTALS	YrBuilt	if YrBuilt = <5 years from current then value = 5
SmallerProp	RENTALS	UnitsinProp	if UnitsinProp is 20 or less then 15 points
			if UnitsinProp is 21–40 then 5 points else = 0
Quietprop	RENTPROF	GroundsQuiet	if GroundsQuiet = "Y" then 5 points else 0
GatedProp	RENTPROF	GatedProp	if GatedProp = "Y" then 15 points else 0
GatedParking	RENTPROF	GatedParking	if GatedParking = "Y" then 15 points or if
		GatedProp	GatedProp = "Y" then 15 points or if
		GarageAttached	GarageAttached = "Y" then 15 points else 0
HomeAlarm	RENTPROF	HomeAlarm	if HomeAlarm = Y then 5 points else 0
MonitoredAlarm	RENTPROF	MonitoredAlarm	if MonitoredAlarm = Y then 5 else 0
Intercom	RENTPROF	Intercom	If Intercom = Y then value = 5 else 0
Patrol	RENTPROF	Patrol	if Patrol = Y then value = 5 else 0
OnSiteLdy	RENTPROF	NoOnSiteLdy	if NoOnSiteLdy >0 then 5 points or if
		WasherDryerIncluded	WasherDryerIncluded = "Y" then 5 points else 0
Elevators	RENTPROF	Elevators	if Elevators = "Y" then 20 points or if
		StuctureNoStories	StructureNoStories = 1 then 20 points else 0
Pool	RENTPROF	NoPools	if NoPools >0 then 15 points
Tennis	RENTPROF	NoTennis	if NoTennis >0 then 15 else 0
Fitness	RENTPROF	NoFitness	if NoFitness >0 then 5 points else 0
Clubbouse	RENTPROF	NoClubbouses	if NoClubbouses >0 then 5 else 0
Racquetball	RENTPROF	NoRacquetball	if NoRacquetball >0 then 5 else 0
Basketball	RENTPROF	NoBasketball	if NoBasketball >0 then 5 else 0
PoolTables	RENTPROF	PoolTables	if NoPoolTables >0 then 5 else 0
MilitaryDisc	RENTPROF	MilitaryDisc	if MilitaryDisc = Y" then 5 else 0
ModerateDisc	RENTPROF	ModerateDisc	if ModerateDisc = "Y" then 5 else 0
SrDiscount	RENTPROF	SeniorDisc	if SeniorDisc = "Y" then 5 else 0

TABLE B-continued

The Rental Kiosk tables of KRENTAL.DB (used for searching) and KRENTINF.DB (used for More Info display) are created from three Administration Rental Tables:
RENTALS.DB (basic information about the apartment community)
RENTPROF.DB (profile information about the apartment community)
RENTUNIT.DB (profile information about the specic rental unit types)

KRENTAL Field	Admin Table	Admin Field	Conversion Instructions
StudentDisc	RENTPROF	StudentDisc	if StudentDisc = "Y" then 5 else 0
CorpApt	RENTPROF	CorpApt	Value is the accumulative sum of the features
		Furnished	if CorpApt = "Y" then 15 points
		MaidService	if Furnished = "Y" then +2 points
		ConferenceArea	if MaidService = "Y" then +2 points
			if ConferenceArea = "Y" then +1 point
			Highest value is 20 points
Furnished	RENTPROF	Furnished	if Furnished = Y then 5 else 0
Handicap	RENTPROF	Handicap	value is the accumulative sum of features:
		MaidService	if Handicap = "Y" then 15 points
		EmergencyCall	if MaidService = "Y" then +2
		MonitoredAlarm	if EmergencyCall = "Y" then +2
		Elevator	if MonitoredAlarm = "Y" then +2
			if Elevator = "Y" then +2
			Highest value = 20 points (sum could exceed if all features but limit to 20 points)
NewerCarpet	RENTPROF	CarpetAge	if CarpetAge is 2 Years or less from current year then 5 points else 0
Dishwasher	RENTPROF	Dishwasher	if Dishwasher = Y then 5 else 0
Refrigerator	RENTPROF	RefrigeratorAvailable	If RefrigeratorAvailable then 5 or if
		RefrigeratorIncluded	RefrigeratorIncluded then 2 else 0
Fireplace	RENTPROF	BedroomFireplace	if BedroomFireplace or if LivingRmFireplace
		LivingRmFireplace	or if FamilyRmFireplace = "Y" then 5 points
		FamilyRmFireplace	
WashDryIncluded	RENTPROF	WashDryIncluded	if WashDryIncluded = "Y" then 5 points else 0
WashDryHookups	RENTPROF	WashDryHookups	if WashDryHookups = "Y" then 5 points else 0
CentralH&A	RENTPROF	CentralH&A	if CentralH&A = Y then 5 else 0
AirCondition	RENTPROF	AirCondition	if AirCondition = "Y" then 5 or if Central
		CentralH&A	H&A = "Y" then 5 else 0
PatioBalc	RENTPROF	PatioBalc	if PatioBalc = "Y" or if PatioYard Y then 5
		PatioYard	points else 0
ExtraStorage	RENTPROF	PatioBalcStorage	if PatioBalcStorage = Y or if ParkingStorage =
		ParkingStorage	"Y" then 5 points else 0
AssignedParking	RENTPROF	AssignParking	if Assigned Parking = Y or if GarageAvailable
		GarageAvailable	or GarageIncluded = Y then 20 points else 0
		GarageIncluded	
Garage	RENTPROF	GarageAvailable	if GarageAvailable or if GarageIncluded = "Y"
		GarageIncluded	then 15 points else 0
CoveredParking	RENTPROF	CoveredParking	if CoveredParking or GarageAvailable or
		GarageAvailable	GarageIncluded or UndergroundParking = Y
		GarageIncluded	then 20 points else 0
		UndergroundParking	
OceanClose	RENTPROF	OceanClose	if OceanWalk = "Y" then 15 points, if
		OceanWalk	OceanClose or ViewOcean then 10 points else 0
		ViewOcean	
ScenicView	RENTPROF	ViewOcean	if any *.views = Y then value = 5 else 0
		ViewBay	
		ViewLakefront	
		ViewMountain	
		View Canyon	
		ViewCityLights	
		ViewHillside	
PublicTransport	RENTPROF	WalkPubTrans	if walkPubTrans = Y then 15points else 0
AdCode1	RENTALS	AdCode1	use value
AdCode2	RENTALS	AdCode2	use value
AdCode3	RENTALS	AdCode3	use value
AdCode4	RENTALS	AdCode4	use value
AdCode5	RENTALS	AdCode5	use value
AdCode6	RENTALS	AdCode6	use value
AdCode7	RENTALS	AdCode7	use value
AdCode8	RENTALS	AdCode8	use value
AdCode9	RNNTALS	AdCode9	use value
StudioCost	RENTPROF	StudioCost	use value
1BedCost	RENTPROF	1BedCost	use value
2BedCost	RENTPROF	2BedCost	use value
3BedCost	RENTPROF	3BedCost	use value
SecDeposit	RENTUNIT	SecDeposit	use value
KeyDep	RENTPROF	KeyDeposit	usevalue
CleanDeposit	RENTUNIT	CleanDeposit	use value
CleanFee	RENTUNIT	CleanFee	use value

TABLE B-continued

The Rental Kiosk tables of KRENTAL.DB (used for searching) and KRENTINF.DB (used for More Info display) are created from three Administration Rental Tables:
RENTALS.DB (basic information about the apartment community)
RENTPROF.DB (profile information about the apartment community)
RENTUNIT.DB (profile information about the specic rental unit types)

KRENTAL Field	Admin Table	Admin Field	Conversion Instructions
CreditFee	RENTPROF	CreditFee	use value
DogDeposit	RENTPROF	DogDeposit	use value
CatDeposit	RENTPROF	CatDeposit	use value

What is claimed is:

1. A method for searching for items in a search pool based on selected search features, comprising the steps of:

selecting a plurality of primary and non-primary search features to be used for basing a search for items in the search pool;

comparing each item in the search pool with said plurality of primary search features;

eliminating items in the search pool which are not an exact match or a near match with said plurality of primary search features;

comparing each item remaining in the search pool with said plurality of non-primary search features;

assigning points to an item in the search pool for a feature which is an exact match or a near match to a feature in said plurality of primary and non-primary search features, all said points to be assigned to said features being predetermined and not requiring input by a user requesting said searching for said items; and

generating a predetermined number of items in the search pool with the highest total points.

2. The method of claim 1 wherein said step of assigning further comprises the steps of:

assigning points for said primary search features; and

assigning points for said non-primary search features.

3. The method of claim 2 wherein said step of assigning points for said primary search features further comprises the steps of:

assigning full points to an item in said search pool for each said primary search features for which an exact matching feature exists in said item;

assigning partial points to said item in said search pool for each said primary search features for which a near matching feature exists in said item; and

eliminating said item in said search pool from a search pool for each said primary search features which does not exist in said item.

4. The method of claim 2 wherein said step of assigning points for said non-primary search features further comprises the steps of:

assigning full points to an item in said search pool for each said non-primary search features for which an exact matching feature exists in said item; and

assigning partial points to said item in said search pool for each said non-primary search features for which a near matching feature exists in said item.

5. An apparatus for searching for items in a search pool based on selected plurality of primary and non-primary search features, said apparatus comprising:

a first storage element for storing text data of the search pool;

a second storage element for storing audio and visual data of the search pool;

a comparator element for comparing each item in the search pool for a feature which is an exact match or a near match to said plurality of primary or non-primary search features, said comparator element comparing each item with said plurality of primary search features before comparing selected said each item which is an exact match or a near match to said primary search feature with said non-primary search features;

a point assignment element for assigning points to an item in the search pool for a feature which is an exact match or a near match to a primary or a non-primary feature in said search features, said point assignment element assigning points to an item based on a plurality of tables including a predetermined schedule of points to be assigned to said features of an item;

a third storage element for storing said text, audio, visual data and said point assignment element of the search pool;

a CPU for processing the data in said first storage element, said second storage element and said third storage element; and

a display element for displaying said search features and search results.

6. The apparatus of claim 5 wherein said point assignment element further comprises:

a primary point assignment element for assigning points for primary search features; and

a non-primary point assignment element for assigning points for non-primary search features.

7. The apparatus of claim 6 wherein said primary point assignment element further comprises:

a primary exact match element for assigning full points to an item in said search pool for each said primary search features for which an exact matching feature exists in said item;

a primary near match element for assigning partial points to said item in said search pool for each said primary search features for which a near matching feature exists in said item; and

a primary no match element for eliminating said item in said search pool from a search pool for each said primary search features which does not exist in said item.

8. The apparatus of claim 6 wherein said non-primary point assignment element further comprises:

a non-primary exact match element for assigning full points to an item in said search pool for each said non-primary search features for which an exact matching feature exists in said item; and

a non-primary near match element for assigning partial points to said item in said search pool for each said non-primary search features for which a near matching feature exists in said item.

9. A system for searching for items in a search pool based on selected plurality of primary and non-primary search features, said system comprising:

a first storage element for storing text data of the search pool;

a second storage element for storing audio and visual data of the search pool;

a comparator element for comparing each item in the search pool for a feature which is an exact match or a near match to said plurality of primary or non-primary search features, said comparator element comparing each item with said plurality of primary search features before comparing selected said each item which is an exact match or a near match to said primary search feature with said non-primary search features;

a point assignment element for assigning points to an item in the search pool for a feature which is an exact match or a near match to a primary or a non-primary feature in said search features, said point assignment element assigning points to an item based on a plurality of tables including a predetermined schedule of points to be assigned to said features of an item;

a third storage element for storing said text, audio, visual data and said point assignment element of the search pool;

a CPU for processing the data in said first storage element, said second storage element and said third storage element; and

a display element for displaying said search features and search results comprising items with highest total points.

10. The system of claim 9 wherein said point assignment element further comprises:

a primary point assignment element for assigning points for primary search features; and

a non-primary point assignment element for assigning points for non-primary search features.

11. The system of claim 10 wherein said primary point assignment element further comprises:

a primary exact match element for assigning full points to an item in said search pool for each said primary search features for which an exact matching feature exists in said item;

a primary near match element for assigning partial points to said item in said search pool for each said primary search features for which a near matching feature exists in said item; and

a primary no match element for eliminating said item in said search pool from a search pool for each said primary search features which does not exist in said item.

12. The system of claim 10 wherein said non-primary point assignment element further comprises:

a non-primary exact match element for assigning full points to an item in said search pool for each said non-primary search features for which an exact matching feature exists in said item; and

a non-primary near match element for assigning partial points to said item in said search pool for each said non-primary search features for which a near matching feature exists in said item.

13. An apparatus for searching for items in a search pool based on selected plurality of primary and non-primary search features, said apparatus comprising:

means for storing text data of the search pool;

means for storing audio and visual data of the search pool;

means for comparing each item in the search pool for a feature which is an exact match or a near match to said plurality of primary or non-primary search features, said means for comparing compares each item with said plurality of primary search features before comparing selected said each item which is an exact match or a near match to said primary search feature with said non-primary search features;

means for assigning points to an item in the search pool for a feature which is an exact match or a near match to a primary or a non-primary feature in said search features, said means for assigning points to an item performing said assigning based on a plurality of tables including a predetermined schedule of points to be assigned to said features of an item;

means for storing said text, audio, visual data and said means for assigning points;

means for processing the data in said means for storing text, said means for storing audio and said means for assigning; and

means for displaying said search features and search results.

14. The apparatus of claim 13 wherein said means for assigning points further comprises:

means for assigning points for primary search features; and

means for assigning points for non-primary search features.

15. The apparatus of claim 13 wherein said means for assigning points for primary search features further comprises:

means for assigning full points to an item in said search pool for each said primary search features for which an exact matching feature exists in said item;

means for assigning partial points to said item in said search pool for each said primary search features for which a near matching feature exists in said item; and

means for eliminating said item in said search pool from a search pool for each said primary search features which does not exist in said item.

16. The apparatus of claim 13 wherein said means for assigning points for non-primary search features further comprises:

means for assigning full points to an item in said search pool for each said non-primary search features for which an exact matching feature exists in said item; and

means for assigning partial points to said item in said search pool for each said non-primary search features for which a near matching feature exists in said item.

17. An apparatus for performing a search for homes in a search pool, and housed in an enclosure comprising:

a touch monitor for displaying selection screens, and for accepting inputs, said selection screens displaying a predetermined number of selection features;

a database containing a predetermined number of items to be searched;

a search software for producing a predetermined number of search results based on said predetermined number of primary and non-primary selection features and by

searching through said database for said items with features matching said primary and non-primary selection features and assigning points to said features corresponding to matching primary and non-primary selection features, said primary selection features being evaluated before said non-primary selection features, all said points to be assigned to said features being predetermined and not requiring input of said points by a user requesting said search;

a computer for running said search software;

a printer for producing a printout with information on a predetermined number of search results;

a printer output portion for dispensing said printout; and

a first storage element for storing said database.

18. The apparatus of claim **17** further comprising a second storage element for storing said database.

19. The apparatus of claim **17** wherein said first storage element comprises a hard disk.

20. The apparatus of claim **18** wherein said second storage element comprises CD ROMs.

21. The apparatus of claim **18** wherein said second storage element comprises floppy disks.

22. The apparatus of claim **18** wherein said search software further comprises a loan search element for searching for home loans.

23. The apparatus of claim **18** wherein said search software further comprises a rental search element for searching for rental properties.

24. A system for performing a search for homes in a search pool, and housed in an enclosure comprising:

a touch monitor for displaying selection screens, and for accepting inputs, said selection screens displaying a predetermined number of selection features;

a database containing a predetermined number of items to be searched;

a search software for producing a predetermined number of search results based on said predetermined number of primary and non-primary selection features and by searching through said database for said items with features matching said primary and non-primary selection features and assigning points to said features corresponding to matching primary and non-primary selection features, said primary selection features being evaluated before said non-primary selection features, all said points to be assigned for said features being predetermined and not requiring input of said points by a user requesting said search;

a computer for running said search software;

a printer for producing a printout with information on a predetermined number of search results;

a printer output portion for dispensing said printout; and

a first storage element for storing said database.

25. The system of claim **24** further comprising a second storage element for storing said database.

26. The system of claim **24** wherein said first storage element comprises a hard disk.

27. The system of claim **25** wherein said second storage element comprises CD ROMs.

28. The system of claim **25** wherein said second storage element comprises floppy disks.

29. The system of claim **24** wherein said search software further comprises a loan search element for searching for home loans.

30. The system of claim **24** wherein said search software further comprises a rental search element for searching for rental properties.

* * * * *

US006041310A

United States Patent [19]

Green et al.

[11] Patent Number: 6,041,310

[45] Date of Patent: Mar. 21, 2000

[54] METHOD AND SYSTEM FOR AUTOMOBILE TRANSACTIONS

[75] Inventors: **H. Dean Green**, Greensboro; **George J. Salquero**, High Point; **Lowell Lang**, deceased, late of Greensboro, all of N.C., by Marilyn Lang, legal representative

[73] Assignee: **Green Ford, Inc.**

[21] Appl. No.: **08/764,541**

[22] Filed: **Dec. 12, 1996**

[51] **Int. Cl.**[7] **G06F 17/60**

[52] **U.S. Cl.** **705/27**; 705/1; 705/26; 707/104

[58] **Field of Search** 705/26, 27, 1; 707/104

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AutoNation USA system printout.

CAR MAX® system printout, date unknown, but believed to be prior art.

AutoNation USA system printout, date unknown, but believed to be prior art.

Primary Examiner—Allen R. MacDonald

Assistant Examiner—Jagdish Patel

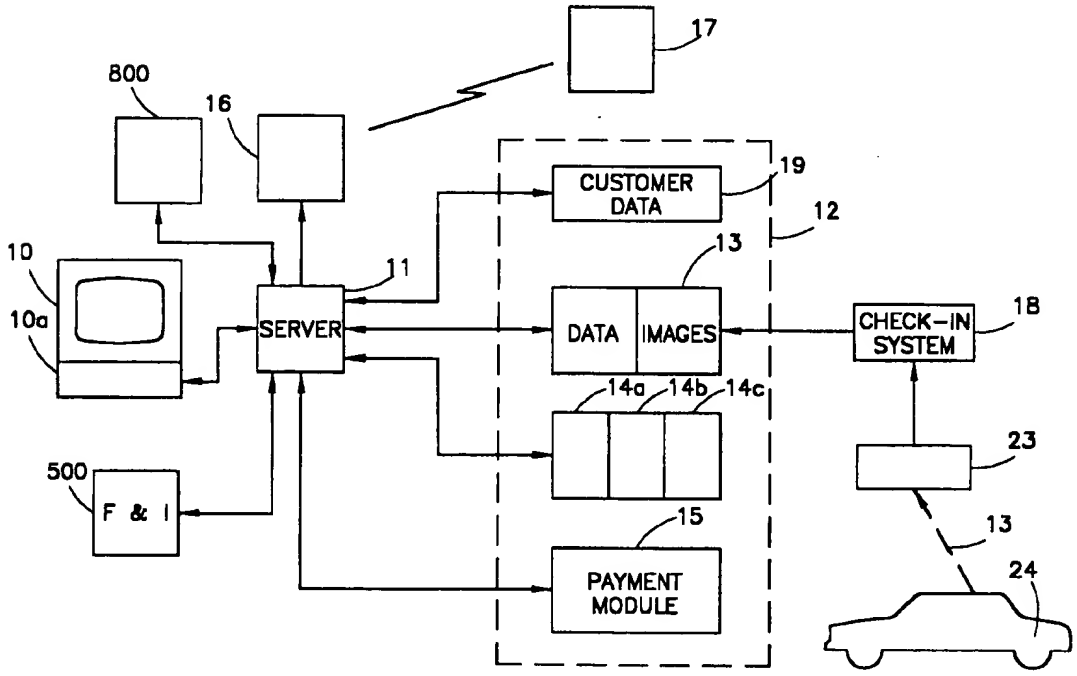
Attorney, Agent, or Firm—Rhodes, Coats & Bennett

[57] **ABSTRACT**

The invention relates to a method and system for facilitating a transaction between a customer and an automobile dealership. The system includes a kiosk including an input/display terminal and a terminal processor for formulating a multilevel customer query of automobile inventory. The query searches a storage device containing automobile data and images to return a selected inventory to the input/display device. The practice of the invention includes storing customer data, selected inventory information for later access by a marketing follow-up application and a financing and insurance application.

32 Claims, 20 Drawing Sheets

Microfiche Appendix Included
(8 Microfiche, 845 Pages)



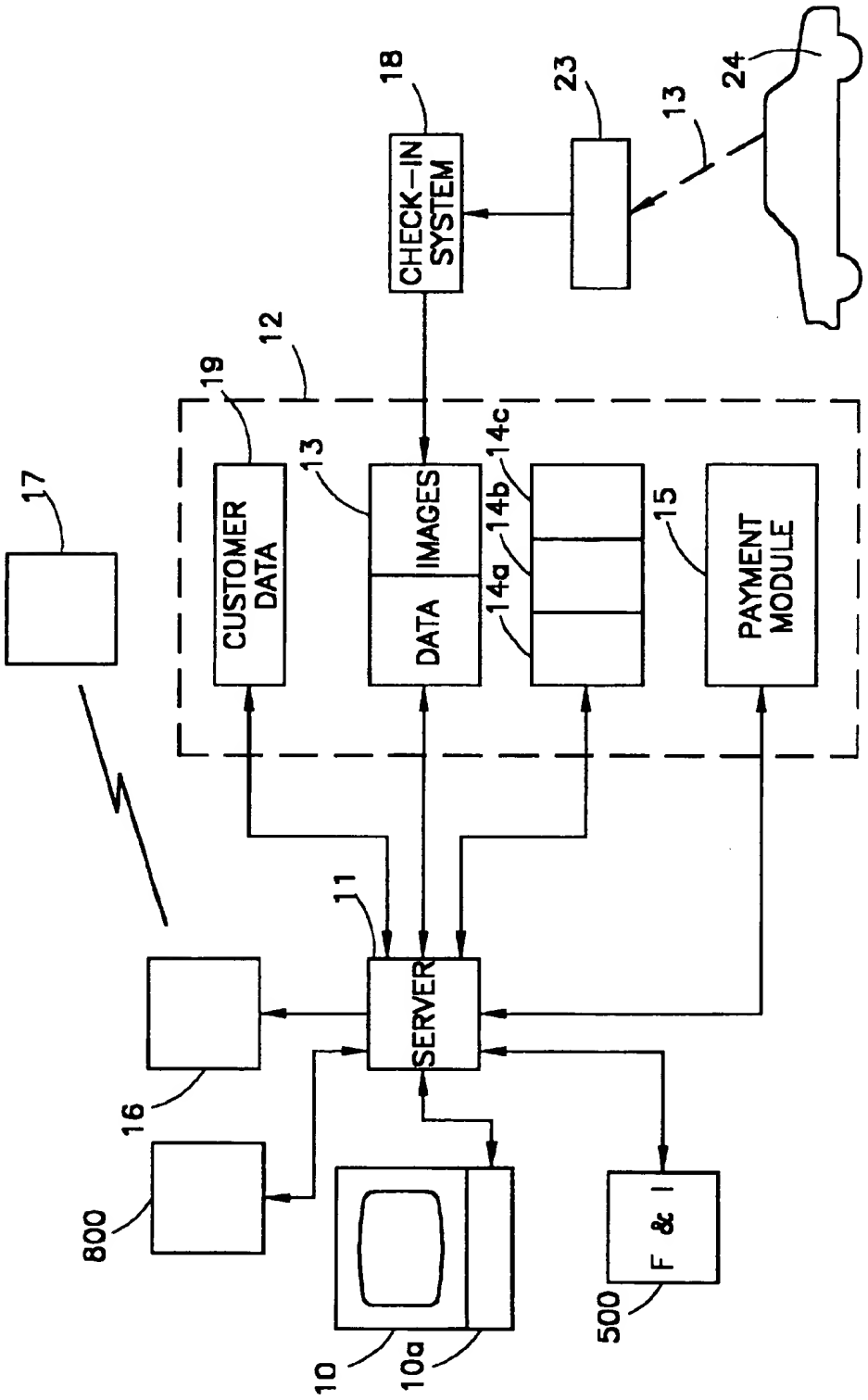

18
CHECK-IN SYSTEM
23
13
24
12
19
CUSTOMER DATA
13
IMAGES
DATA
14c
14b
14a
15
PAYMENT MODULE
17
11
SERVER
16
800
10
10a
F & I
500

FIG. 1

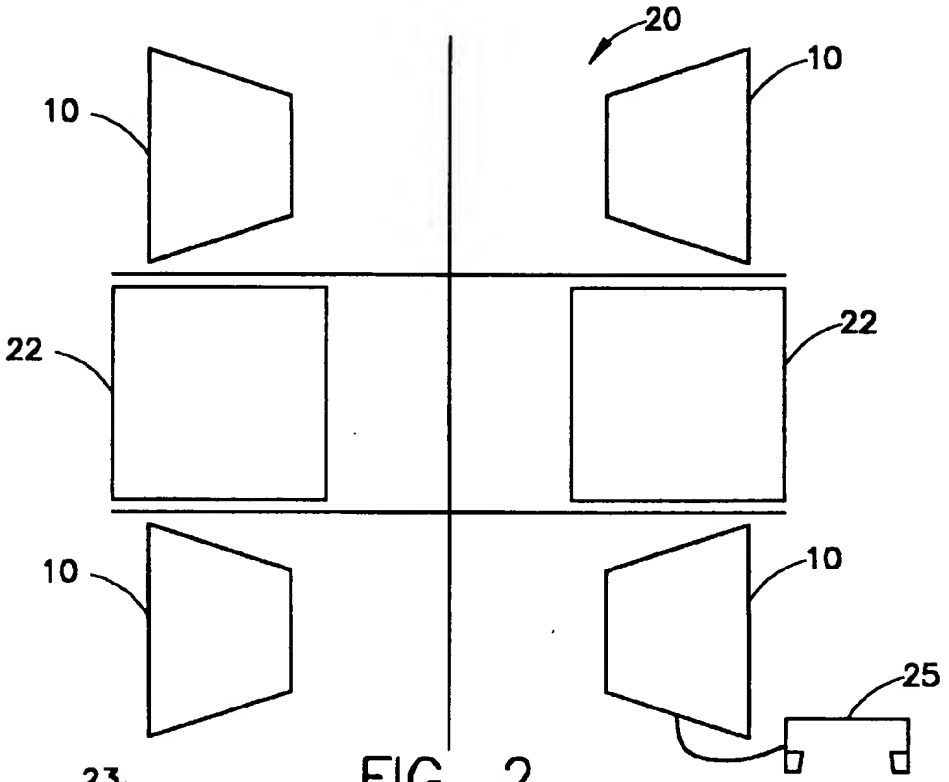


FIG. 2

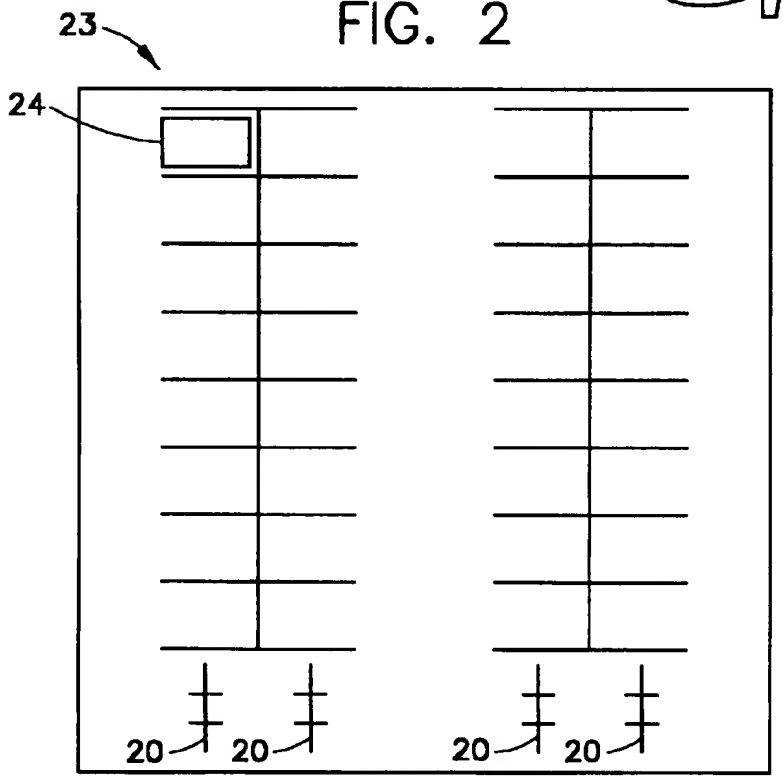


FIG. 3

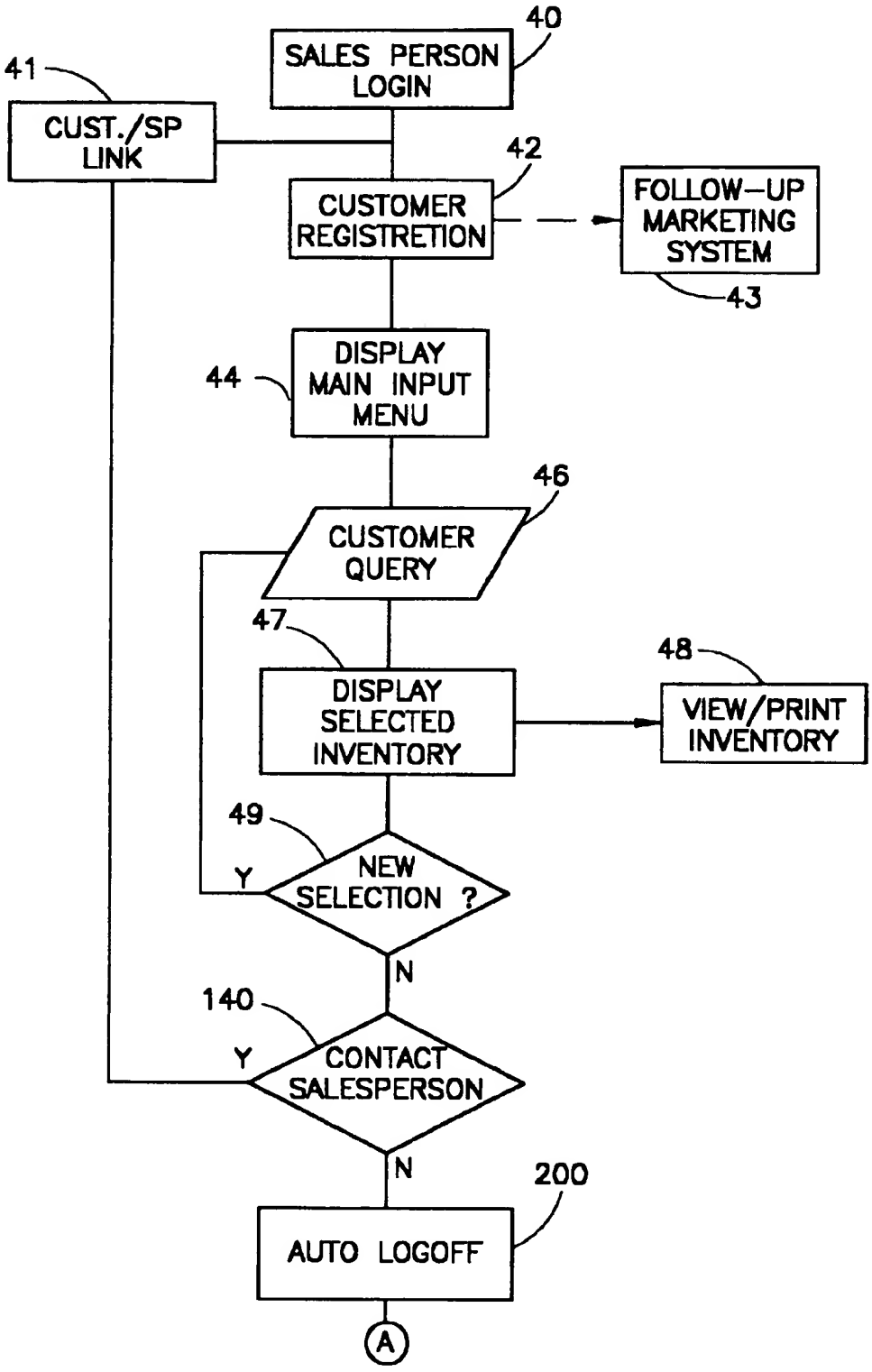

40
SALES PERSON LOGIN
41
CUST./SP LINK
42
CUSTOMER REGISTRETION
FOLLOW-UP MARKETING SYSTEM
43
44
DISPLAY MAIN INPUT MENU
46
CUSTOMER QUERY
47
DISPLAY SELECTED INVENTORY
48
VIEW/PRINT INVENTORY
49
NEW SELECTION ?
Y
N
140
CONTACT SALESPERSON
Y
N
200
AUTO LOGOFF
A

FIG. 4

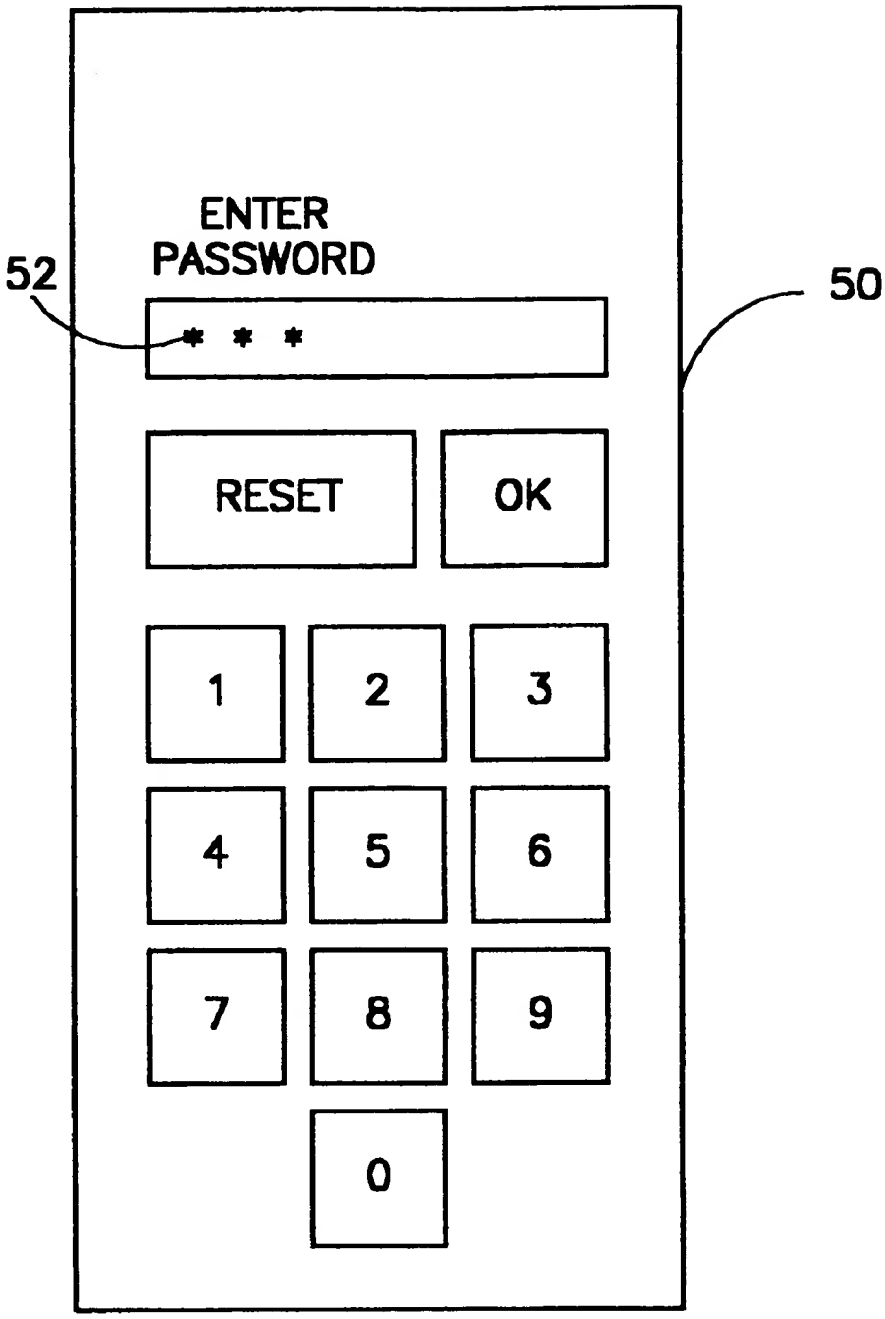


FIG. 5

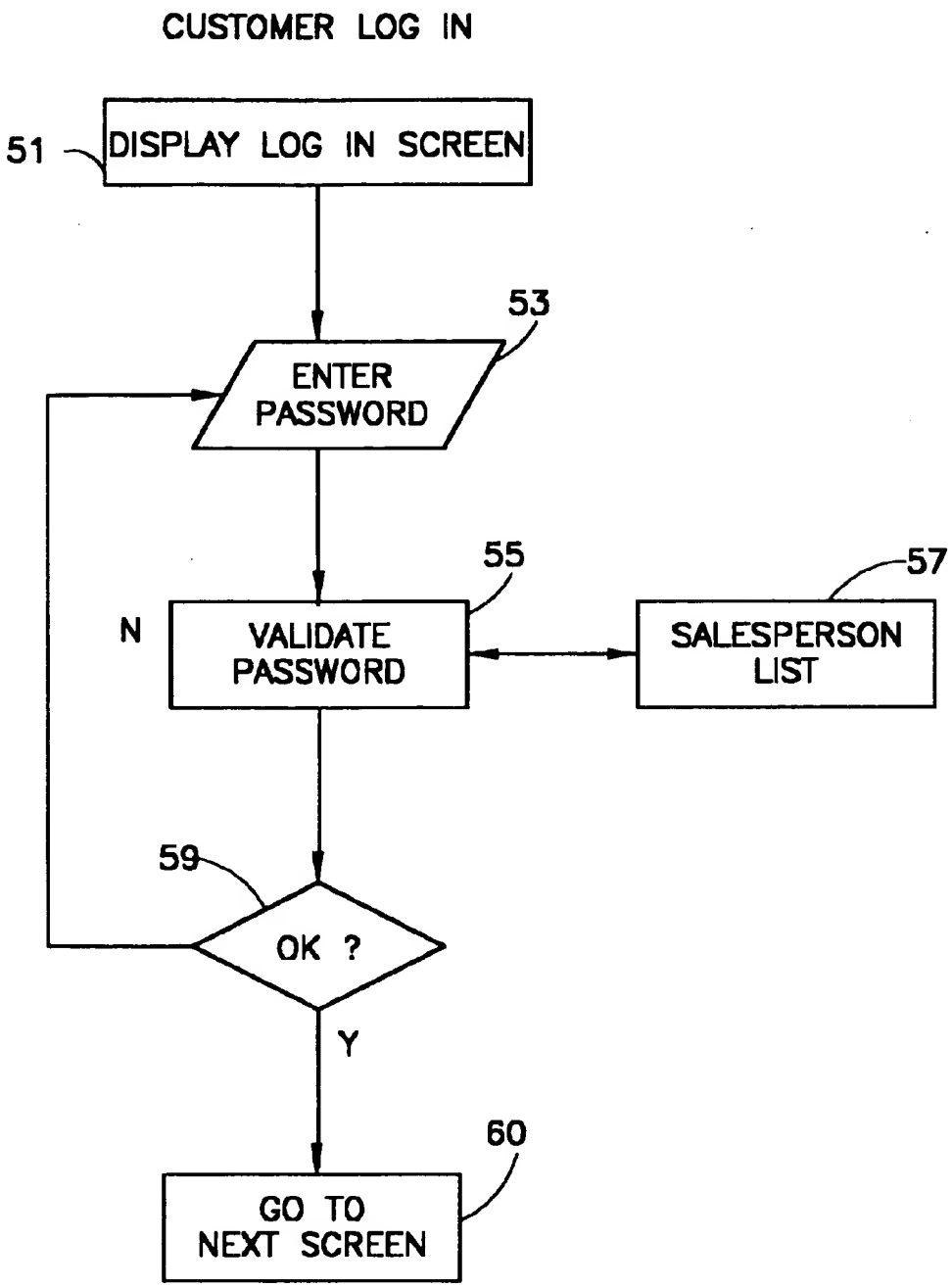

CUSTOMER LOG IN
51
DISPLAY LOG IN SCREEN
53
ENTER PASSWORD
55
57
N
VALIDATE PASSWORD
SALESPERSON LIST
59
OK ?
Y
60
GO TO NEXT SCREEN

FIG. 5A

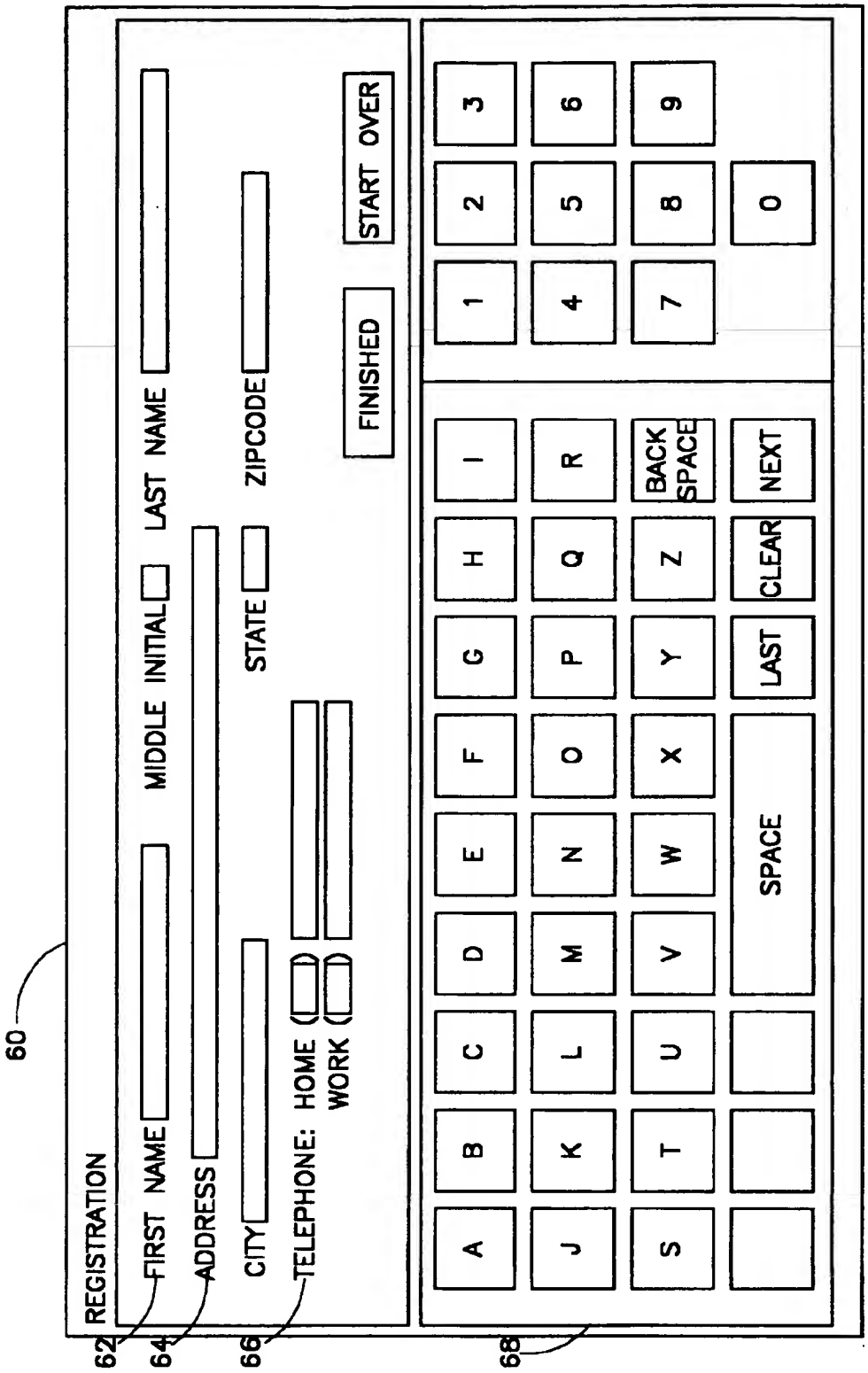

60
REGISTRATION
FIRST NAME
MIDDLE INITIAL
LAST NAME
ADDRESS
CITY
STATE
ZIPCODE
TELEPHONE: HOME
WORK
FINISHED
START OVER
62
64
66
68
A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z
SPACE
BACK SPACE
CLEAR
LAST
NEXT
1 2 3
4 5 6
7 8 9
0

FIG. 6

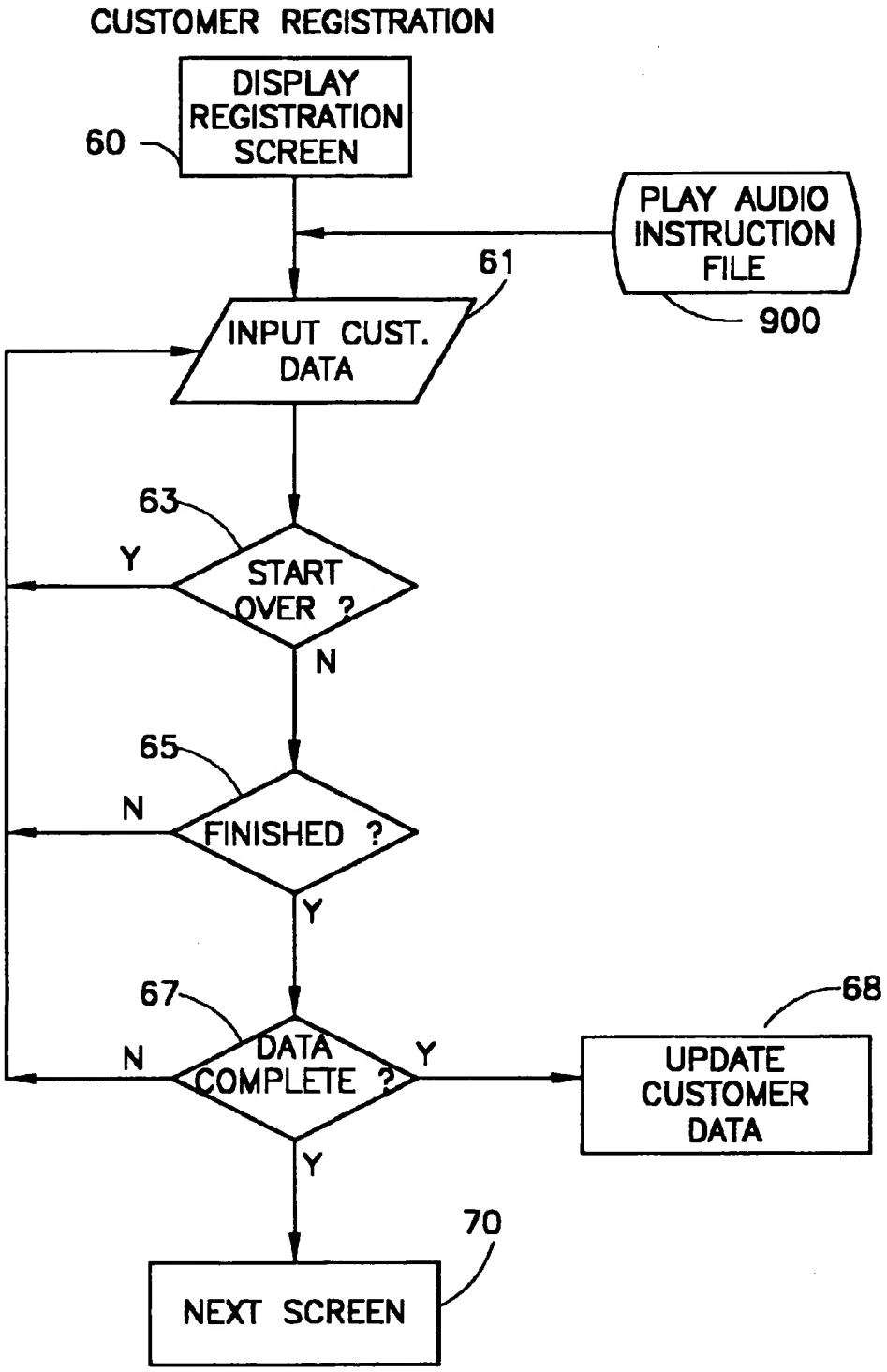

CUSTOMER REGISTRATION
DISPLAY REGISTRATION SCREEN
60
PLAY AUDIO INSTRUCTION FILE
900
61
INPUT CUST. DATA
63
START OVER ?
Y
N
65
FINISHED ?
N
Y
67
DATA COMPLETE ?
N
Y
68
UPDATE CUSTOMER DATA
Y
70
NEXT SCREEN

FIG. 6A

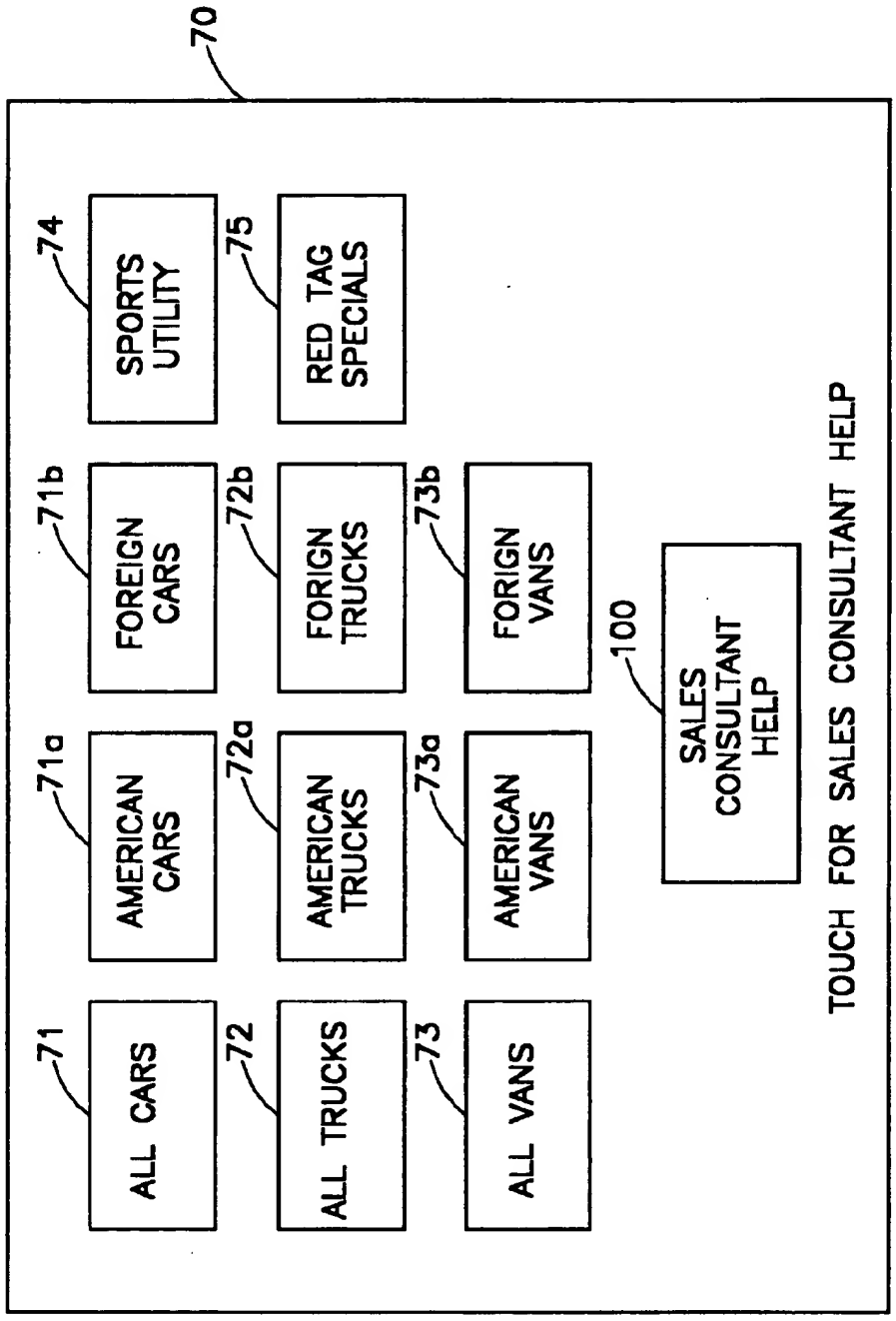

70
ALL CARS
71
AMERICAN CARS
71a
FOREIGN CARS
71b
SPORTS UTILITY
74
ALL TRUCKS
72
AMERICAN TRUCKS
72a
FORIGN TRUCKS
72b
RED TAG SPECIALS
75
ALL VANS
73
AMERICAN VANS
73a
FORIGN VANS
73b
SALES CONSULTANT HELP
100
TOUCH FOR SALES CONSULTANT HELP

FIG. 7

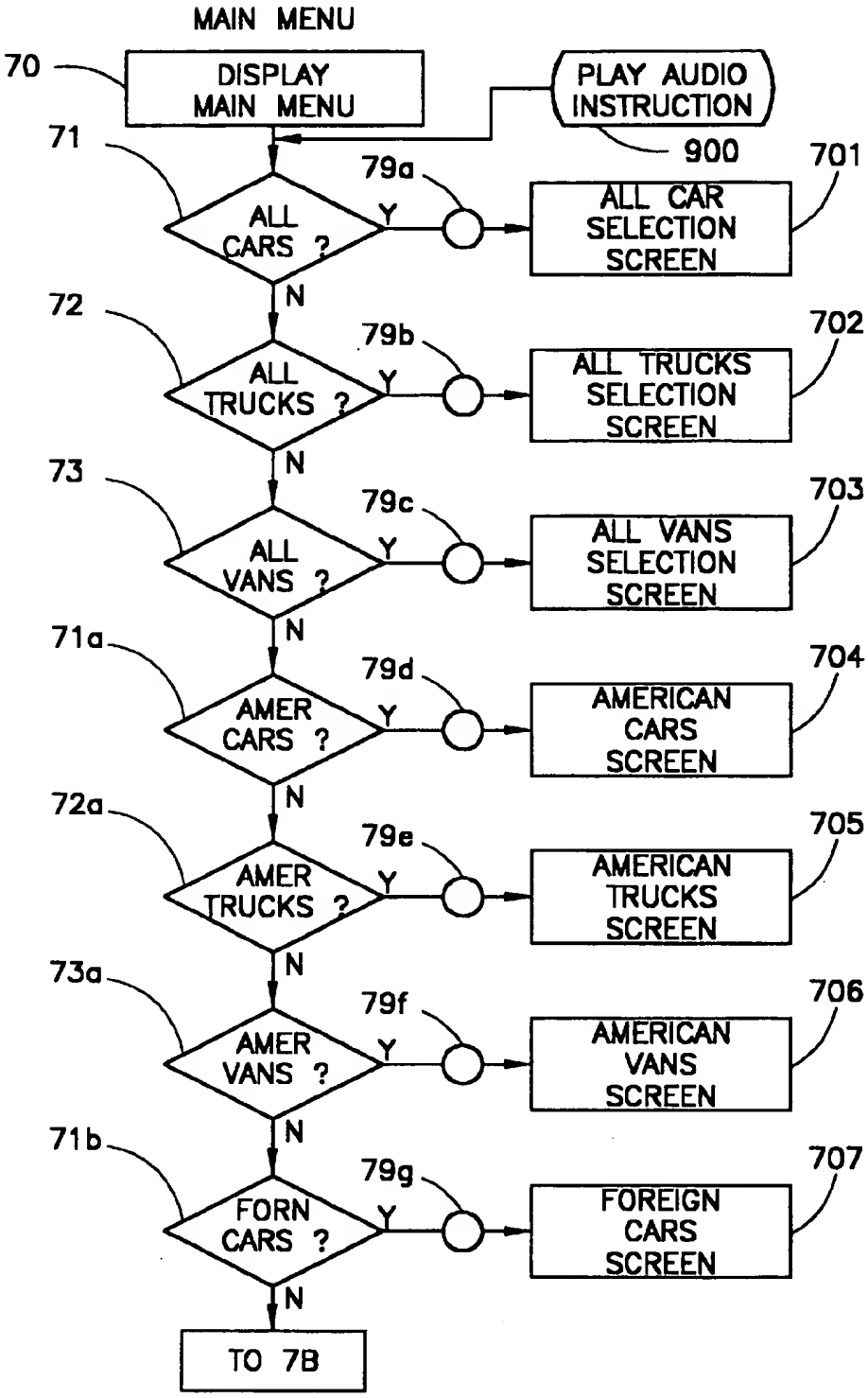

MAIN MENU
70
DISPLAY MAIN MENU
PLAY AUDIO INSTRUCTION
900
71
ALL CARS ?
79a
Y
N
ALL CAR SELECTION SCREEN
701
72
ALL TRUCKS ?
79b
ALL TRUCKS SELECTION SCREEN
702
73
ALL VANS ?
79c
ALL VANS SELECTION SCREEN
703
71a
AMER CARS ?
79d
AMERICAN CARS SCREEN
704
72a
AMER TRUCKS ?
79e
AMERICAN TRUCKS SCREEN
705
73a
AMER VANS ?
79f
AMERICAN VANS SCREEN
706
71b
FORN CARS ?
79g
FOREIGN CARS SCREEN
707
TO 7B

FIG. 7A

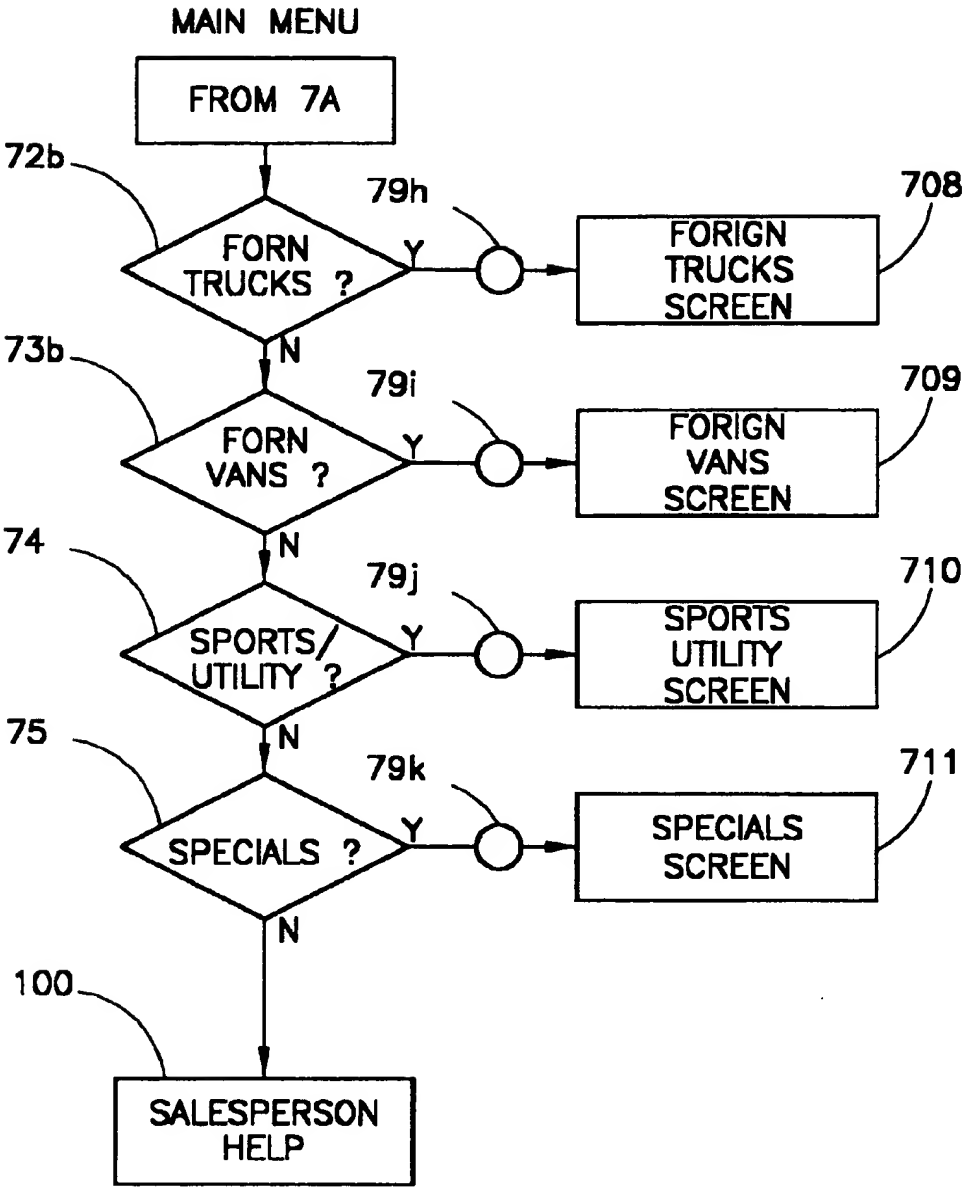

MAIN MENU
FROM 7A
72b
FORN TRUCKS ?
79h
Y
708
FORIGN TRUCKS SCREEN
N
73b
FORN VANS ?
79i
Y
709
FORIGN VANS SCREEN
N
74
SPORTS/ UTILITY ?
79j
Y
710
SPORTS UTILITY SCREEN
N
75
SPECIALS ?
79k
Y
711
SPECIALS SCREEN
N
100
SALESPERSON HELP

FIG. 7B

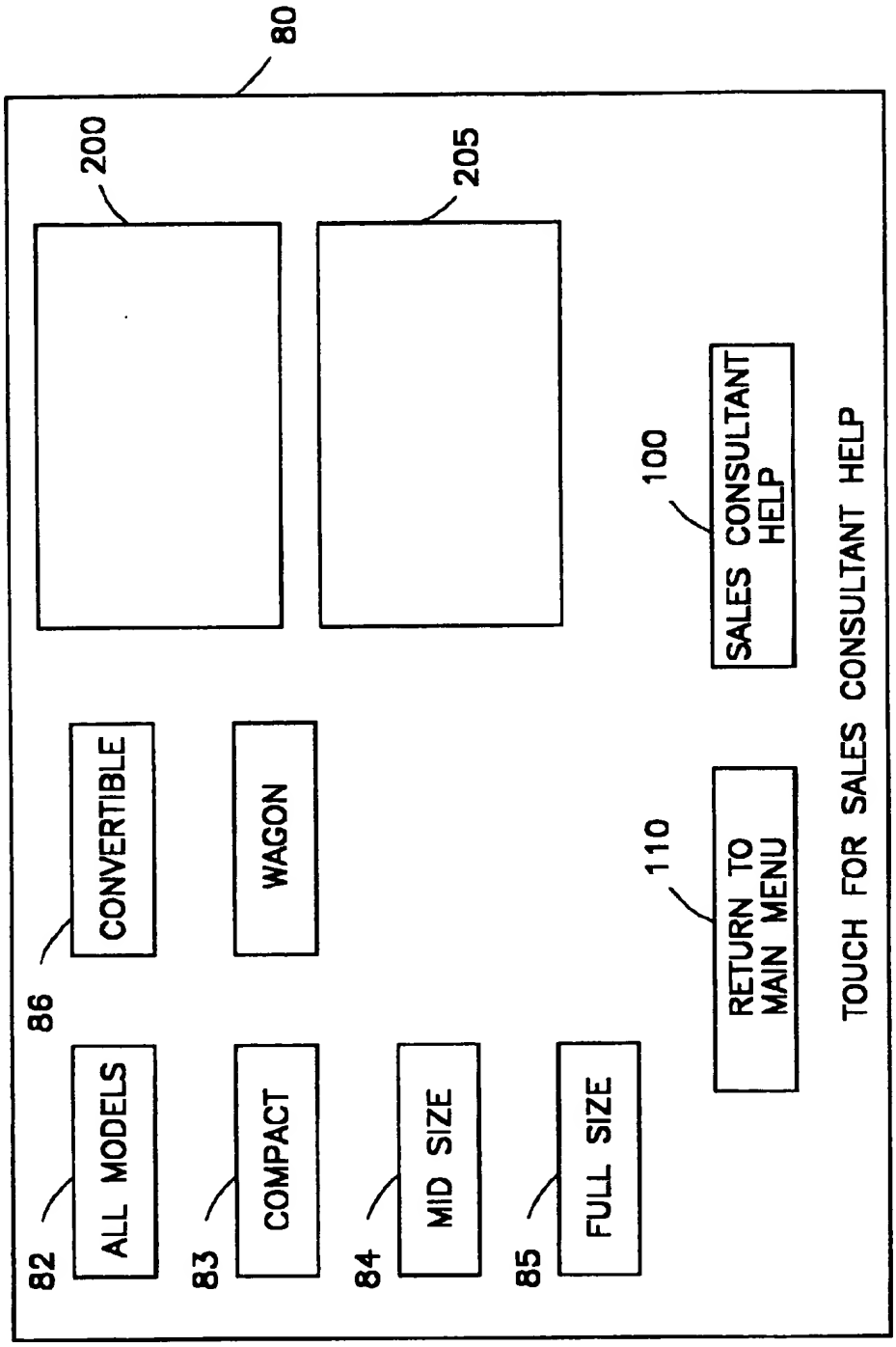

80
200
205
100
SALES CONSULTANT HELP
110
RETURN TO MAIN MENU
TOUCH FOR SALES CONSULTANT HELP
86
CONVERTIBLE
WAGON
82
ALL MODELS
83
COMPACT
84
MID SIZE
85
FULL SIZE

FIG. 8

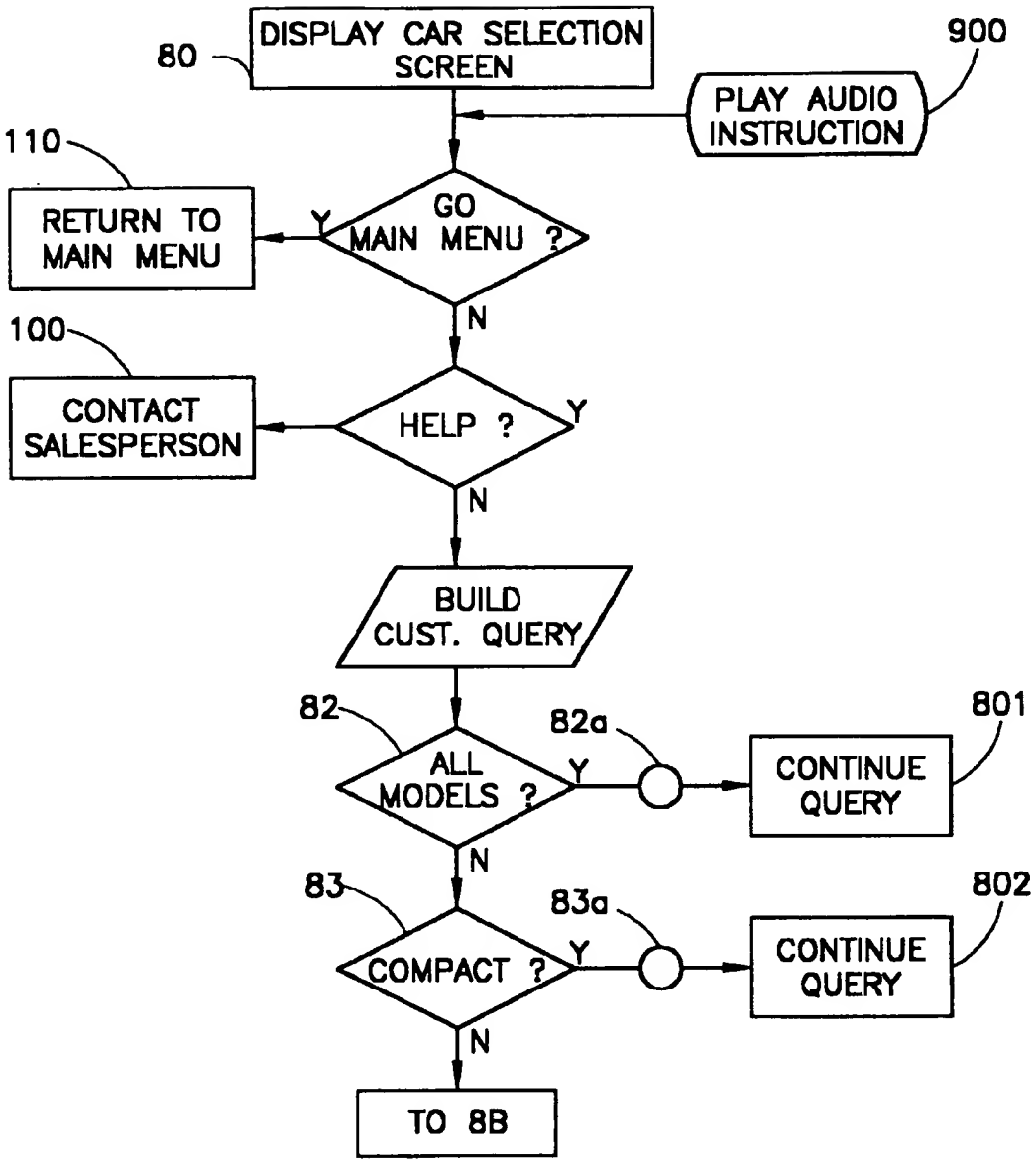

80
DISPLAY CAR SELECTION SCREEN
900
PLAY AUDIO INSTRUCTION
110
RETURN TO MAIN MENU
GO MAIN MENU ?
Y
N
100
CONTACT SALESPERSON
HELP ?
Y
N
BUILD CUST. QUERY
82
ALL MODELS ?
82a
Y
801
CONTINUE QUERY
N
83
COMPACT ?
83a
Y
802
CONTINUE QUERY
N
TO 8B

FIG. 8A

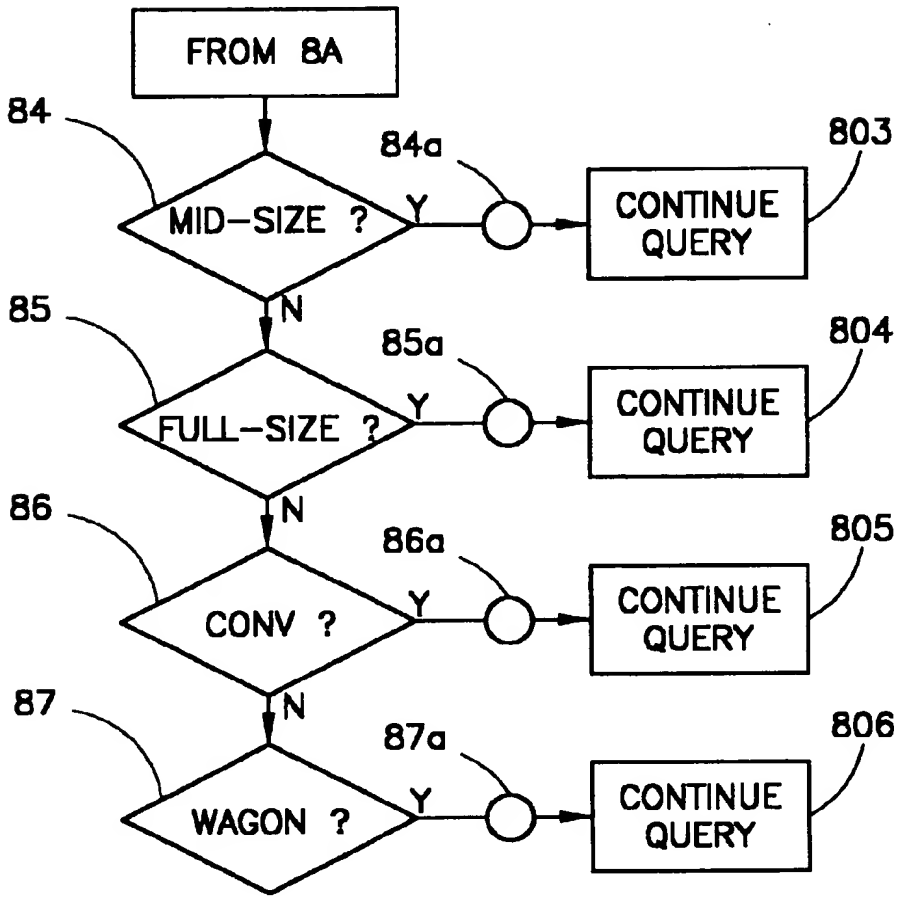

FROM 8A
84
MID–SIZE ?
84a
Y
803
CONTINUE QUERY
N
85
FULL–SIZE ?
85a
Y
804
CONTINUE QUERY
N
86
CONV ?
86a
Y
805
CONTINUE QUERY
N
87
WAGON ?
87a
Y
806
CONTINUE QUERY

FIG. 8B

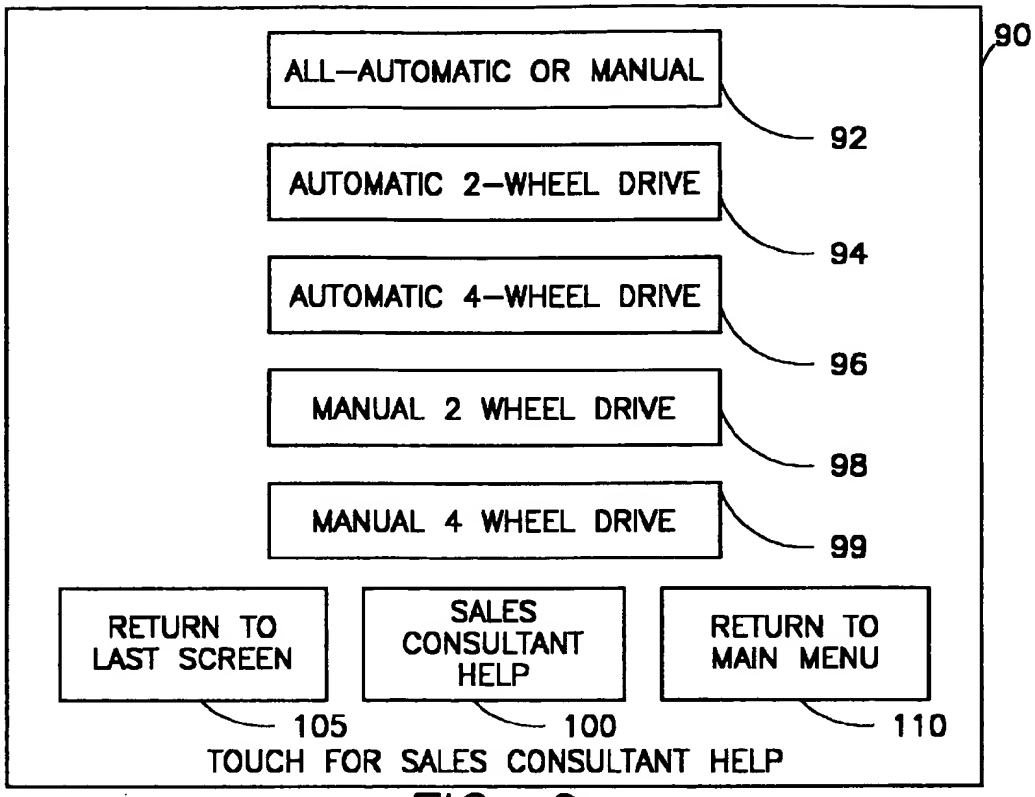

90
ALL–AUTOMATIC OR MANUAL
92
AUTOMATIC 2–WHEEL DRIVE
94
AUTOMATIC 4–WHEEL DRIVE
96
MANUAL 2 WHEEL DRIVE
98
MANUAL 4 WHEEL DRIVE
99
RETURN TO LAST SCREEN
105
SALES CONSULTANT HELP
100
RETURN TO MAIN MENU
110
TOUCH FOR SALES CONSULTANT HELP

FIG. 9

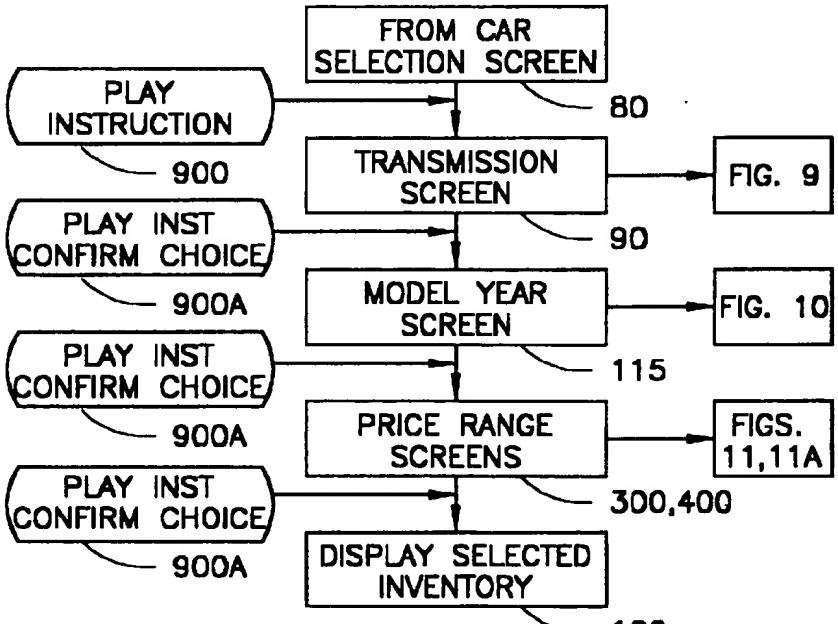

FROM CAR SELECTION SCREEN
80
PLAY INSTRUCTION
900
TRANSMISSION SCREEN
90
FIG. 9
PLAY INST CONFIRM CHOICE
900A
MODEL YEAR SCREEN
115
FIG. 10
PLAY INST CONFIRM CHOICE
900A
PRICE RANGE SCREENS
300,400
FIGS. 11,11A
PLAY INST CONFIRM CHOICE
900A
DISPLAY SELECTED INVENTORY
120

FIG. 9A

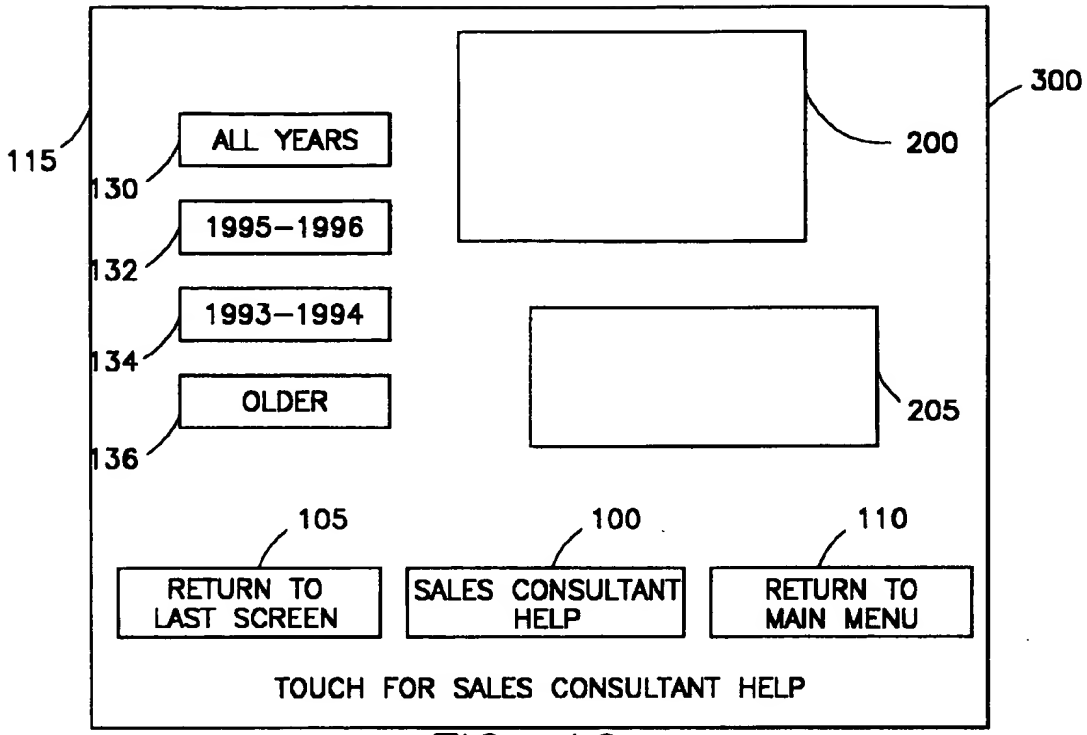

300
115
ALL YEARS
130
1995–1996
132
1993–1994
134
OLDER
136
200
205
105
100
110
RETURN TO LAST SCREEN
SALES CONSULTANT HELP
RETURN TO MAIN MENU
TOUCH FOR SALES CONSULTANT HELP

FIG. 10

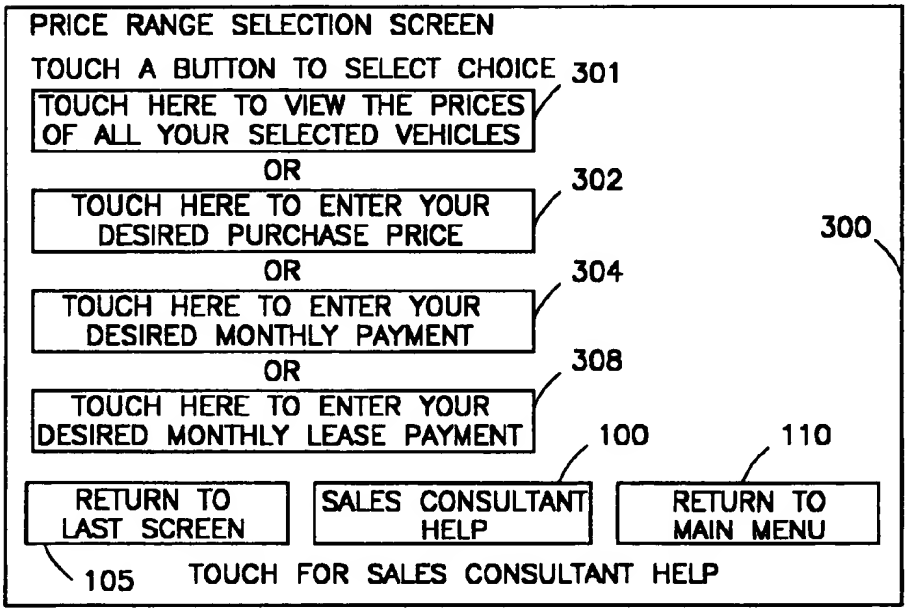

PRICE RANGE SELECTION SCREEN
TOUCH A BUTTON TO SELECT CHOICE
301
TOUCH HERE TO VIEW THE PRICES OF ALL YOUR SELECTED VEHICLES
OR
302
TOUCH HERE TO ENTER YOUR DESIRED PURCHASE PRICE
300
OR
304
TOUCH HERE TO ENTER YOUR DESIRED MONTHLY PAYMENT
OR
308
TOUCH HERE TO ENTER YOUR DESIRED MONTHLY LEASE PAYMENT
100
110
RETURN TO LAST SCREEN
SALES CONSULTANT HELP
RETURN TO MAIN MENU
105
TOUCH FOR SALES CONSULTANT HELP

FIG. 11

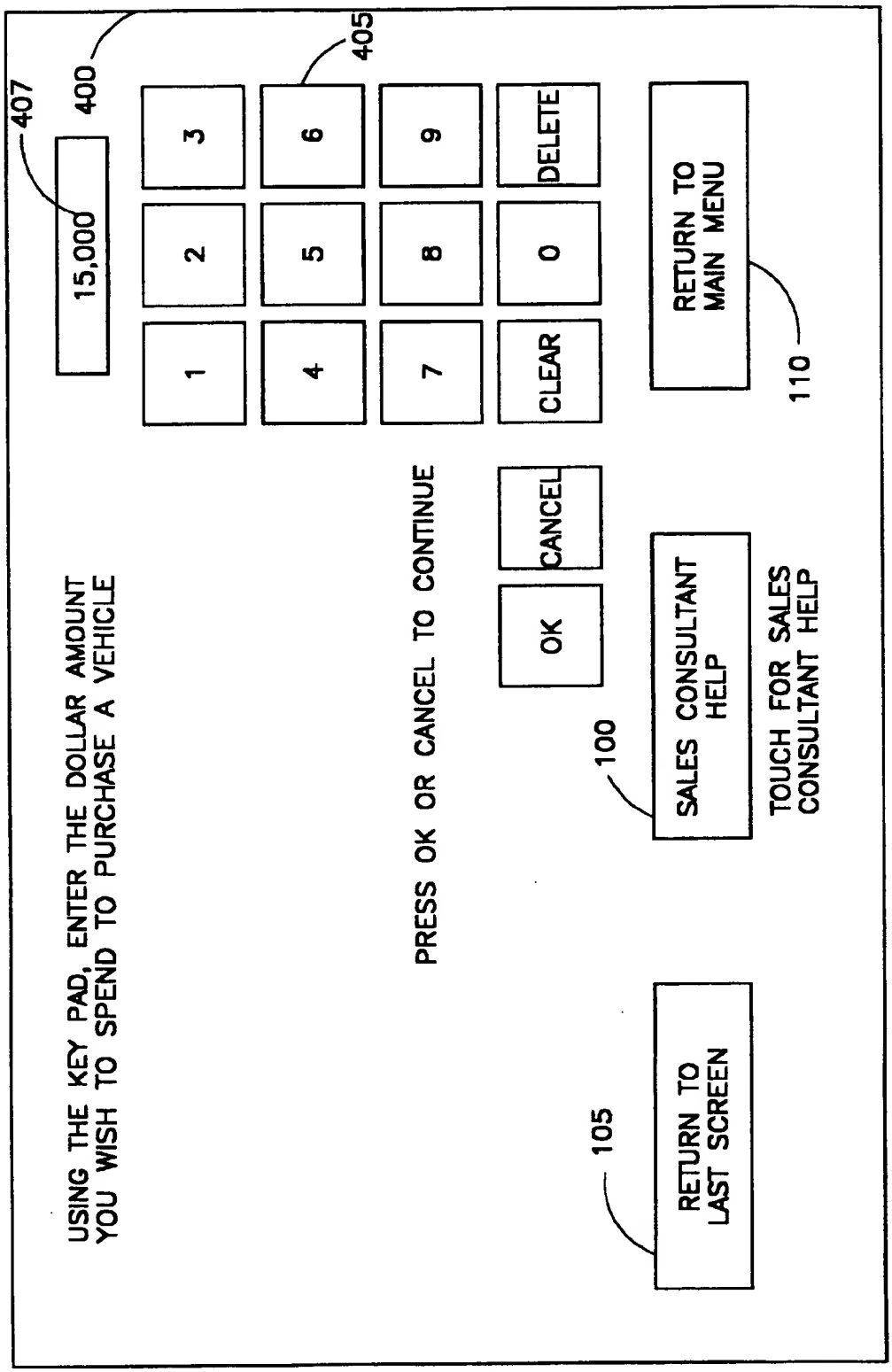

USING THE KEY PAD, ENTER THE DOLLAR AMOUNT
YOU WISH TO SPEND TO PURCHASE A VEHICLE
15,000
407
400
405
1
2
3
4
5
6
7
8
9
CLEAR
0
DELETE
PRESS OK OR CANCEL TO CONTINUE
OK
CANCEL
RETURN TO
MAIN MENU
110
100
SALES CONSULTANT
HELP
TOUCH FOR SALES
CONSULTANT HELP
105
RETURN TO
LAST SCREEN

FIG. 11A

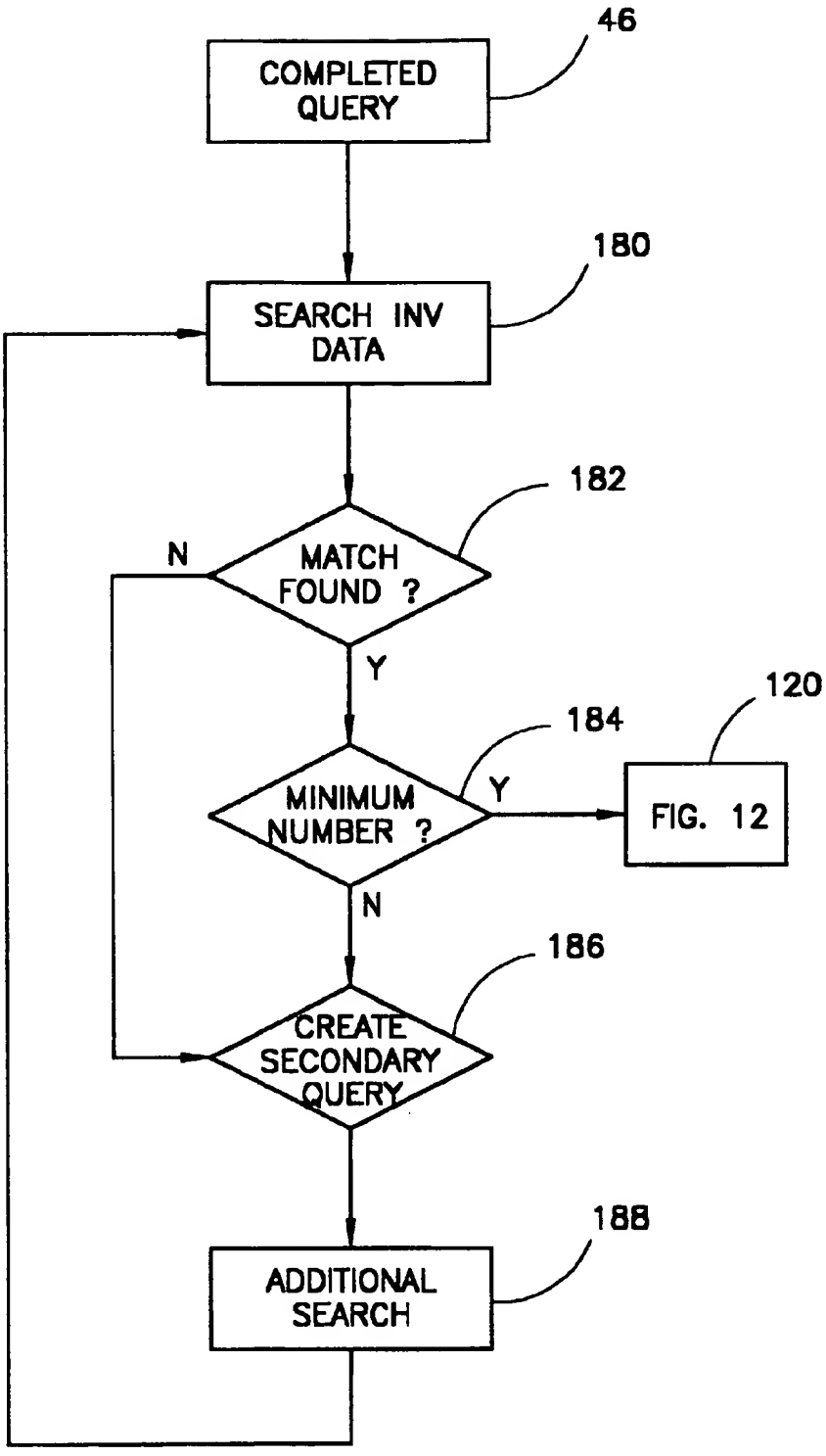

46
COMPLETED QUERY
180
SEARCH INV DATA
182
MATCH FOUND ?
N
Y
184
MINIMUM NUMBER ?
Y
120
FIG. 12
N
186
CREATE SECONDARY QUERY
188
ADDITIONAL SEARCH

FIG. 12

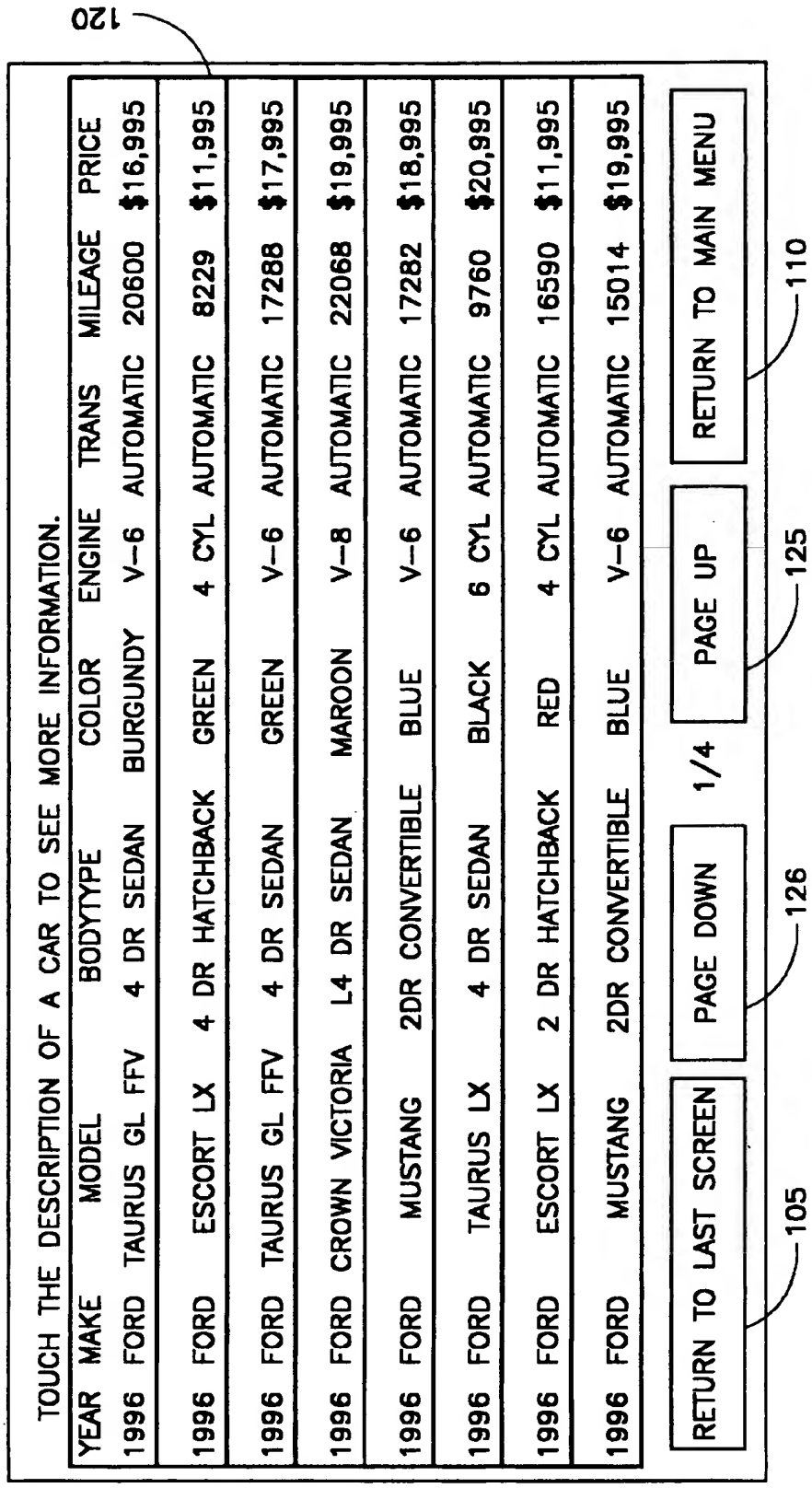

120
TOUCH THE DESCRIPTION OF A CAR TO SEE MORE INFORMATION.
YEAR MAKE MODEL BODYTYPE COLOR ENGINE TRANS MILEAGE PRICE
1996 FORD TAURUS GL FFV 4 DR SEDAN BURGUNDY V-6 AUTOMATIC 20600 $16,995
1996 FORD ESCORT LX 4 DR HATCHBACK GREEN 4 CYL AUTOMATIC 8229 $11,995
1996 FORD TAURUS GL FFV 4 DR SEDAN GREEN V-6 AUTOMATIC 17288 $17,995
1996 FORD CROWN VICTORIA L4 DR SEDAN MAROON V-8 AUTOMATIC 22068 $19,995
1996 FORD MUSTANG 2DR CONVERTIBLE BLUE V-6 AUTOMATIC 17282 $18,995
1996 FORD TAURUS LX 4 DR SEDAN BLACK 6 CYL AUTOMATIC 9760 $20,995
1996 FORD ESCORT LX 2 DR HATCHBACK RED 4 CYL AUTOMATIC 16590 $11,995
1996 FORD MUSTANG 2DR CONVERTIBLE BLUE V-6 AUTOMATIC 15014 $19,995
RETURN TO LAST SCREEN
PAGE DOWN
1/4
PAGE UP
RETURN TO MAIN MENU
105
126
125
110

FIG. 12A

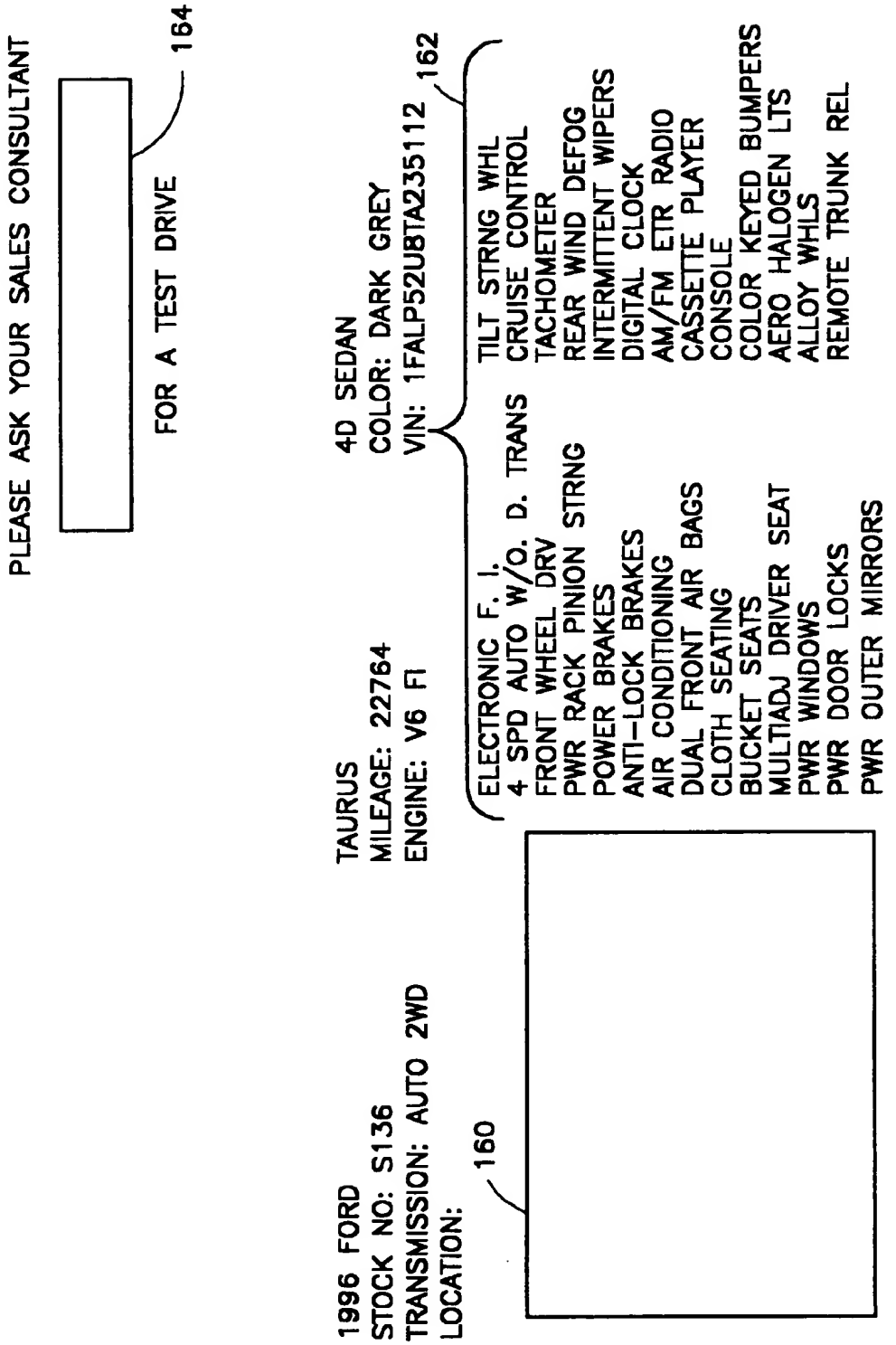

PLEASE ASK YOUR SALES CONSULTANT
FOR A TEST DRIVE
164
1996 FORD
STOCK NO: S136
TRANSMISSION: AUTO 2WD
LOCATION:
160
TAURUS
MILEAGE: 22764
ENGINE: V6 FI
4D SEDAN
COLOR: DARK GREY
VIN: 1FALP52UBTA235112
162
ELECTRONIC F. I.
4 SPD AUTO W/O. D. TRANS
FRONT WHEEL DRV
PWR RACK PINION STRNG
POWER BRAKES
ANTI-LOCK BRAKES
AIR CONDITIONING
DUAL FRONT AIR BAGS
CLOTH SEATING
BUCKET SEATS
MULTIADJ DRIVER SEAT
PWR WINDOWS
PWR DOOR LOCKS
PWR OUTER MIRRORS
TILT STRNG WHL
CRUISE CONTROL
TACHOMETER
REAR WIND DEFOG
INTERMITTENT WIPERS
DIGITAL CLOCK
AM/FM ETR RADIO
CASSETTE PLAYER
CONSOLE
COLOR KEYED BUMPERS
AERO HALOGEN LTS
ALLOY WHLS
REMOTE TRUNK REL

FIG. 13

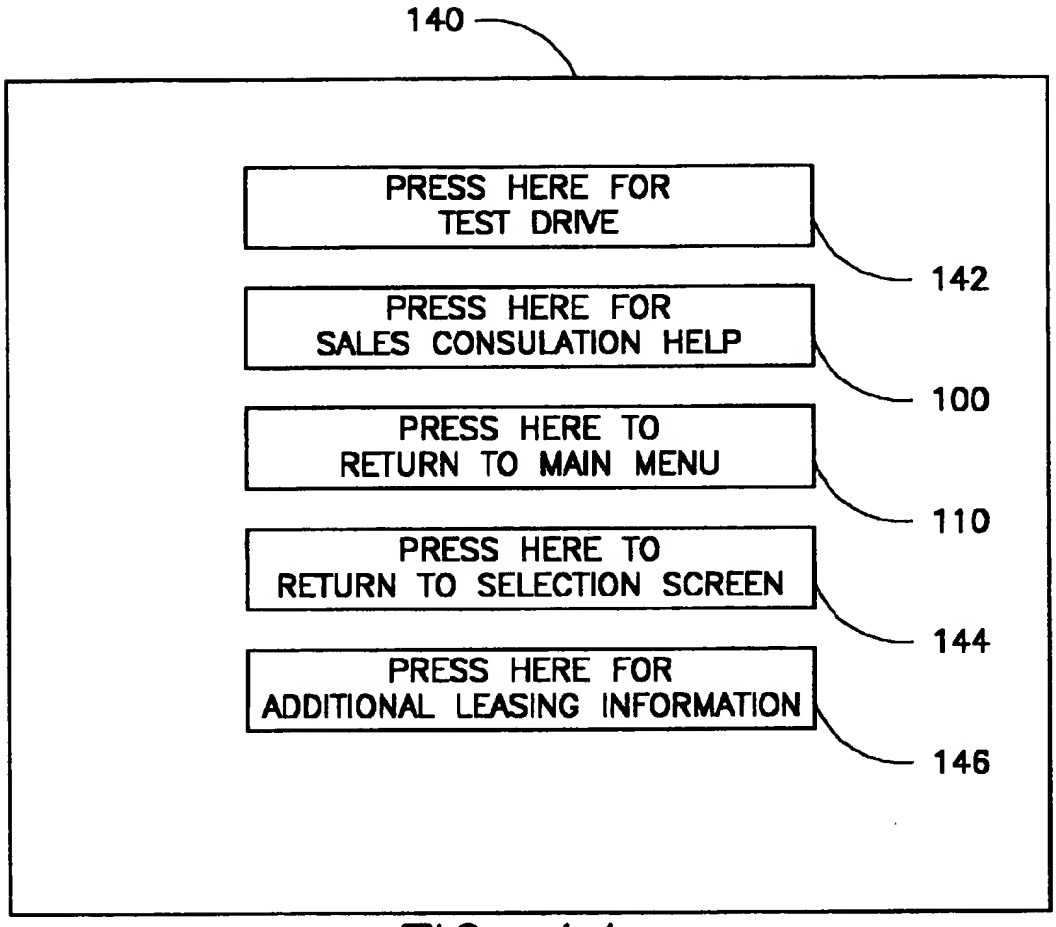

140
PRESS HERE FOR TEST DRIVE
142
PRESS HERE FOR SALES CONSULATION HELP
100
PRESS HERE TO RETURN TO MAIN MENU
110
PRESS HERE TO RETURN TO SELECTION SCREEN
144
PRESS HERE FOR ADDITIONAL LEASING INFORMATION
146

FIG. 14

METHOD AND SYSTEM FOR AUTOMOBILE TRANSACTIONS

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MICROFICHE APPENDIX

This application includes a microfiche appendix (8 pages, 845 frames) containing a computer listing.

BACKGROUND OF THE INVENTION

The present invention relates to a method and a system for facilitating automobile purchase and lease transactions. More specifically, the present invention relates to an interactive system which collects customer requirements and preferences and provides a listing of available dealership inventory matching those items. The system permits a customer to review a number of available vehicles to narrow the scope of his search prior to the involvement of a sales assistant. The system may be used for either new or used vehicles.

The modern automobile customer is faced with a daunting array of choices for not only car models from which to choose but also with respect to the business from which to buy them. The average size of automobile dealerships for both new and used vehicles is growing. Moreover, with increasing frequency, dealerships sell multiple automobile lines under one roof. Therefore, even within a particular price range, automobile type, or manufacturer line, there are a plethora of choices and decisions to be made by the consumer.

In a typical car purchase transaction, the customer visits the dealership and wanders the showroom or the dealer's lot in search of an automobile meeting the customer's requirements and desires. The customer does not have any information concerning current dealership inventory. The customer may be approached by a salesperson who will provide assistance to the customer in locating and identifying the desired make and model. For the reasons described above, this process can be quite time consuming, particularly if the customer is unsure about her needs.

The process for a used car may be even more cumbersome. Used cars of a particular line may be found at many more dealerships than just those of that particular line. It follows that the customer has an even larger number of potential trips to make to examine cars. Shopping for used cars using newspaper advertisements can also be very time intensive and has the potential to produce disappointing results because newspaper advertisements typically provide only bare-bones information and do not provide a visual image of the automobile to give some indication of its condition. U.S. Pat. No. 5,238,731 to Lalonde et al. discloses a Computer-Based Classified Ad System and Method which features visual images of the items offered for sale.

Some customers may prefer to do their initial model selection alone in the absence of any sales pressure from an employee of the dealership. The dealership may benefit from this preference by not having a salesperson tied up with a customer who is unsure of what he wants. The dealership and the customer will benefit from involving the salesperson at a point where the customer knows what he wants.

The systems that have been developed in this area do not address all the needs described above. For example, the Car Max® chain of used car "superstores" provides a customer operated system for car selection called AutoMation® Vehicle Browse. It is believed that the system stores a customer name for display in an on-screen greeting. The system also uses the customer's zip code to incorporate the associated city into the customer greeting. However, it is not believed that the system creates a link to a salesperson or contacts the salesperson when the customer is ready to test drive a vehicle. A similar system is available from the Auto Nation USA used car chain. However, it is believed that that system does have the features described above.

There is a need then for a system and a method of facilitating an automobile transaction which will permit a customer to sift through the myriad choices available for a car purchase. At the same time, the system and method must optimize salesperson effectiveness by involving the salesperson in the transaction only when needed and at the point where the customer is most likely to be ready to purchase. Desirably, such a system would also link the salesperson to the customer to permit follow-up both during the customer's visit and later, after the customer has left the dealership.

SUMMARY OF THE INVENTION

The system of the present invention provides several advantages over prior art methods of handling automobile transactions. First, the system establishes a link between the salesperson and the customer that is maintained throughout the customer transaction. The customer is automatically directed to the salesperson when he needs help navigating the system and when he desires further assistance to examine selected inventory. The system captures basic information about the customer, which information can later be reused for a variety of purposes. The information can be used for follow-up marketing, to gather data on customer demographics, and to expedite the administrative paperwork associated with the car purchase as the transaction is closed. With respect to the last item, the system provides an interface between a financing and insurance application and customer data maintained on a storage device so that the required paperwork for an automobile transaction can be completed quickly and efficiently with reduced opportunity for mistakes. The method and system of the present invention are desirably practiced using touch screen technology for customer input. Touch screens are less intimidating for some customers than keyboards and are believed to be more reliable in the long term than keyboards. The touch screen technology is augmented by audio instructions and confirmation of each customer selection. Thus, the customer is provided with a pleasant, interactive purchase experience that will help to build repeat business.

The data that is collected concerning customer queries may be collected by a dealership and analyzed to track customer preferences and thus guide inventory purchases. For a used car dealer, this aspect is particularly valuable as it allows the dealer to stock vehicles having the highest turnover rate.

Another aspect of this system permits dealership management to monitor salesperson performance in response to customer requests for help and additional information concerning vehicles. This feature can be valuable for maintaining a high level of customer satisfaction.

The present invention includes an on-site system for facilitating an automobile transaction for a customer. The system comprises an input/display terminal adapted to form

a multilevel customer query and to display responses thereto. The terminal including a terminal processor which is adapted to create a link between the customer and a salesperson assigned to that customer. This salesperson is referred to as a "linked" salesperson and is tied to that particular customer throughout the transaction.

The system further includes a data server adapted to route a customer query from the input/display terminal to a storage device containing customer data, automobile inventory data, vehicle images, and video files. The storage device is adapted to communicate to the input/display device via the data server a selected inventory responsive to the customer query. The term "selected inventory" has the specific meaning explained herein below.

The system further includes a communications device for making a customer-initiated contact with the linked sales person from the input/display terminal via the data server.

The system could also include a printer for printing information relating to at least one automobile from the selected inventory.

An addition feature of the system is an interface between the storage device and an automobile check-in system wherein the interface updates the inventory data to include data relating to newly acquired automobiles as the newly acquired automobiles are received.

In the practice of the present invention the selected inventory is comprised of a minimum number of vehicles from the current automobile inventory.

The system may further include an interface between the storage device and a financing and insurance application, which application is capable of extracting customer data and selected inventory information to determine exact monthly payments for the lease/purchase of an automobile from the selected inventory.

The present invention also comprehends a method for facilitating an automobile purchase transaction between a customer and an automobile dealership. The method comprises assigning a linked sales person to the customer. The linked salesperson is tied to that customer throughout the remaining steps of the method. The method further includes providing a customer transaction terminal including a display/input terminal and a terminal processor and providing a storage device containing customer data, vehicle data, vehicle images, instructional audio, video, and a payment module. A multilevel customer query is created, the query containing parameters relating to a preferred automobile in the kiosk processor. The method also includes displaying a selected inventory at the input/display device, wherein the selected inventory comprises a minimum number of selected automobiles from the automobile inventory database to include additional automobiles outside customer parameters if fewer than the minimum number of automobiles meeting customer parameters exist in the inventory; contacting the linked salesperson responsive to a customer-initiated request from the input/display device and storing the customer query and selected inventory in the storage device.

Other aspects of the method of the present invention include displaying a list of available salespersons on the input/display device; and contacting a customer-selected sales person from the list via the communications device. Alternatively, the method includes displaying a group of images of available sales persons; and contacting a customer-selected sales person from the group via the communications device.

The method further includes generating a primary multilevel customer query in the input/display terminal processor; displaying a selected inventory if the primary query returns a minimum number of vehicles from the current inventory; generating a secondary query in the input/display terminal processor if the primary query fails to return a minimum number of vehicles; displaying a selected inventory comprised of vehicles meeting the secondary query if the number of vehicles from the secondary query equals a minimum number of vehicles; and repeating these steps until the number of vehicles from the primary and the secondary query equals a minimum number of vehicles to be displayed.

Thus, an aspect of this invention includes providing an easy-to-use, interactive system for an automobile transaction using touch screen technology in combination with video and audio feedback to the customer.

Another aspect of the present invention is to provide a method for capturing customer data only once, storing that data for later access by a follow-up marketing application or a financing and insurance application.

Yet another aspect of the present invention is providing a system which will always display some amount of dealership inventory for every customer query.

Still another aspect of the present invention is displaying a minimum number of vehicles in response to a customer query even if the dealership has fewer than that minimum number currently in inventory.

Another aspect of the present invention includes allowing the customer to review dealership inventory without any sales pressure so as to involve the salesperson only when the customer needs help with the system or when the customer has located a vehicle of interest.

A further aspect of the present invention is the use of touch screen technology to provide a more "user-friendly" experience for an automobile customer and to provide a more reliable input device.

Yet another aspect of the present invention includes modifying a primary multilevel customer query until the query returns a minimum number of vehicles.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** illustrates components of the system of the present invention.

FIG. **2** illustrates a kiosk of the present invention.

FIG. **3** illustrates a typical salesroom layout incorporating the present invention.

FIG. **4** is a flowchart illustrating the operation of the system of the present invention.

FIG. **5** illustrates the log in screen of the present invention.

FIG. **5A** illustrates the logic steps of the log in screen of the present invention.

FIG. **6** illustrates the registration screen of the present invention.

FIG. **6A** illustrates the logic steps of the log in screen of the present invention.

FIG. **7** shows the main menu of the system of the present invention.

FIGS. **7A**, **7B** illustrate the logic steps of the main menu of the present invention.

FIG. **8** shows the "All Cars" car selection screen of the present invention.

FIGS. **8A**, **8B** illustrate the logic steps of the "All Cars" car selection screen of the present invention.

FIG. **9** shows the transmission selection screen of the present invention.

FIG. 9A shows the logic steps of the car selection process of the present invention for the steps after the "All Cars" selection screen.

FIG. **10** shows the model year selection screen of the present invention.

FIG. **11** shows the first price range selection screen of the present invention.

FIG. **11A** shows the second price range selection screen of the present invention.

FIG. **12** shows the vehicle selection screen of the present invention.

FIG. **12A** shows the selected inventory screen of the present invention.

FIG. **13** shows the selected vehicle screen of the present invention.

FIG. **14** shows the final decision screen of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In this description, the term "automobile" will be used to refer to a wide range of vehicles sold at retail by car dealerships to include cars, trucks, vans and sports/utility vehicles. The term "vehicle" as used herein is intended to have the same meaning as the term automobile.

The diagram in FIG. **1** illustrates the components of a preferred embodiment of the present invention. The system is comprised of a terminal **10**, terminal processor **10***a*, a data server **11**, a communications device **16**, a storage device **12**, and a "linked" salesperson **17**. The storage device **12** contains a customer database **19**, an inventory database **13**, vehicle image files **14**, video and sound files **14**, and payment module **15**. An additional component is check-in system **18** which is interfaced to the storage device **12**. The inventory data **12** includes information about each vehicle as shown in Table 1 below.

TABLE 1

Inventory Data	
Model Year	Stock Number
Make	Vehicle Identification Number
Model	Transmission
Body Style	Engine
Color	Location
Mileage	Features
Price	Vehicle Image

The features information item refers to such things as type radio, cruise control, tilt steering wheel power windows and the power windows and the like which will vary from vehicle to vehicle. This listing is exemplary only and may be expanded to fit a particular vehicle type.

The equipment selected for the data server and the terminal processor should be capable of displaying large image files quickly. Therefore, a preferred device for the terminal processor is a Pentium-based personal computer operating at a clock speed of at least 166 Mhz and having at least 32 Meg of Random Access Memory (RAM). Less capable equipment may be technically capable but may be so slow as to cause customer dissatisfaction with system performance. Desirably, the data server is a dual processor unit operating at a clock speed of 200 Mhz to create a network capable of 100 MPS. The selection of suitable computer equipment for the practice of the present invention is within the skill of one of ordinary skill in the art.

The programming for the present invention can be accomplished with any one of the well-known computer languages. In a preferred embodiment, the Delphi language is used.

The customer data is created and saved as customers are logged in and use the system. This data is comprised of basic information about each customer, such as, but not limited to, name, address and phone number.

The check-in system **18** is a computerized system for capturing information concerning newly-acquired automobiles as they are brought into the dealership. These systems are well known in the automobile business and are available from a variety of vendors. As shown in more detail in FIG. **1A**, this system may include a laptop computer for recording inventory data shown in Table **1** for each automobile. The information could include a digital image of the vehicle. Desirably, the images are recorded in the well-known JPEG file format although other images such as MPEG could be used. In order to speed the later processing of the images and to conserve storage device space, the images may be compressed for storage. A typical image file having a size of **1** megabyte could be compressed to about a third that size using well-known compression techniques.

The newly-acquired automobiles must be cleaned and given a mechanical examination prior to being formally added to the dealership inventory in the system. Prior to that time, it is not desirable to make a vehicle available for customer queries generated by the present invention. The practice of the present invention includes providing an interface between the check-in system **18** and the storage device **12** so that periodically data relating to newly-acquired vehicles may be uploaded into the storage device **12**. This data concerning the newly-acquired vehicles will not be available for customer query at terminal **10** until dealership management has priced the vehicle and declared it ready for sale.

Terminal **10** accepts customer input and displays the results of system queries. The terminal **10** should include a monitor large enough to permit easy viewing and to accept input using a touch screen. An acceptable monitor is the Viewsonic 17GS. Touch screen technology is preferable for customer input over conventional keyboards because keyboards quickly show wear from heavy use. Additionally, it is believed that touch screens in the long term are more reliable than keyboards. Touch screens are also much more "user-friendly" and less intimidating for some customers. Touch screen technology is well known in the art and will not be explained in detail here. The terminal **10** is connected to a terminal **10***a* which contains all the executable files and some of the data files required to generate the displays on the terminal **10**. The data server **11** acts as an interface between the kiosk processor **10***a* and the other components of the system.

Turning now to FIG. **2**, there is illustrated a kiosk **20** of the present invention. The kiosk is made up of four terminals **10** arranged in pairs as shown. Each terminal is provided with its own set of headphones **25** to allow private listening to the audio presentation which accompanies the various system displays. Printers **22** provide a hard copy of the results of system queries as discussed below. In a typical salesroom layout, as shown in FIG. **3**, a number of kiosks **20** may be provided in the salesroom **23** in close proximity to the automobiles **24** offered for sale. Other kiosk and salesroom layouts may be created depending on customer volume, available space and economic considerations. Selection of a kiosk configuration is within the capability of one of ordinary skill in the art.

The operation of the system will be described with reference to FIGS. **4–14**. System operation begins with the assignment of a customer to a salesperson **40**. This assignment need not be done formally but could be accomplished by matching up each customer entering the dealership with a salesperson. The salesperson escorts the customer to a kiosk where the terminal processor **10***a* has displayed a log in screen **50** as shown in FIG. **5**. The salesperson then enters a unique password **52** that identifies him to the system so that the system creates a customer/salesperson link **41** (FIG. 4) that is maintained in system memory from that point forward. The log in process is illustrated by the flowchart in FIG. 5A and the logic steps in Table 2 below.

TABLE 2

Salesperson Log In
● Display log in screen. (51)
● Wait for salesperson to enter password and press OK.53
● Password is validated against current list of sales representatives (55, 57) If OK (59) proceed to next screen (60), otherwise force user to re-enter correct password is received.

The customer dons headphones **25** (FIG. **2**) and may be greeted with a video presentation welcoming the customer to the dealership. In all cases, the system provides initial instructions on the use of the touch screen by playing the appropriate audio file contained in storage device **12**. This presentation, along with all the remaining sound, image and video information provided to the customer, is generated in response to a request from the terminal processor for the video **14***a*, image **14***b* and sound files **14***c* via server **11**. These files may comprise any one of the well-known formats to include AVI files for video, JPEG or MPEG files for images, and WAV files for audio/sound. The selection of a particular file format will vary depending on equipment availability and the preferences of the person of ordinary skill in the art assembling the system. The scope of the present invention includes using new, more efficient or capable file formats that will be developed for each of these type files.

Next, the system displays registration screen **60**. (See FIG. **6**) In this preferred embodiment, a simulated keyboard **68** is provided to enter such customer information as name **62**, address **64**, and phone number **66**. Additional information that could also be captured includes how the customer heard about the dealership and whether she is just browsing or seriously intends to purchase an automobile. Some or all of this information may be transferred via an interface to a follow-up marketing system **43** (FIG. **4**). This system may use well-known commercially available contact management software such as GOLDMINE marketed by Goldmine Software Corporation. This software package may be configured to access the customer data to perform follow-up functions. Some additional uses of a follow-up system include generating mailing lists, notifying customers of newly arriving inventory meeting the customer's specific requirements, as well as notifying customers of upcoming sales events. The registration process could also incorporate registering the customer for ongoing promotional giveaways. The flow chart of FIG. **6**A and Table 3 below describe the registration process logic steps in more detail.

TABLE 3

Registration Process
● Display registration screen. (60)
● Play registration audio instruction. (900)
● Input customer data. (61)
● If user presses finished button (65), validates that data is complete (67) before proceeding. If data is incomplete or missing, continues to loop as necessary until data capture is complete.
● If start over button pressed, all entries are cleared. (63)
● When finished and data passes validation, add data to customer database. (65)

The audio instruction **900** for each screen will be tailored to that particular screen.

The system next displays main menu **70**, a preferred configuration of which is illustrated in FIG. **7**. This menu **70** is the starting point for building a multilevel, primary customer query of the current dealership inventory for automobiles meeting the customer's needs and preferences.

The customer may limit her query to American or foreign cars, vans, or trucks using keys **71***a*, **71***b*, **72***a*, **72**, **73***a* and **73***b*. Alternatively, if the customer's interests dictate, the query may be limited to sports/utility vehicles using key **74**. The selections provided on this menu may be customized for a particular dealer's inventory or modified to include specialty vehicles if carried. For the customer who has no strong preference at this point or who would like to see a large number of automobiles, the menu provides "All Cars," **71** "All Trucks,"**72** and "All Vans" **73** options. A "Red Tag Specials" **75** selection carries the customer directly to promotional sales automobiles which could be of any type. This special selection could carry any catchy name designed pull a customer's attention quickly to these vehicles. The operation of the main menu **70** is described in more detail in the flow charts shown in FIGS. **7**A, **7** B and in Table 4 below.

TABLE 4

Main Menu Screen
● Display main menu screen. (70)
● Play audio instruction. (900)
● If sales consultant help is selected, then contact salesperson that logged in customer. (100)
● Audio confirms each customer selection. (79a–79j)
● Otherwise, system uses the button pressed to start building a query for selecting vehicles out of the complete available-for-sale inventory. (71–75)

Again, as is the case with each of the system displays, the main menu, when first displayed, is accompanied by the playing of an audio instruction file to guide the customer through the query process. Another feature of each system screen display is the "Sales Consultant Help" **100** selection which, when touched, contacts the linked salesperson as described in more detail herein below.

The customer query **46** step will now be further described with reference to building a typical customer query. However, it should be understood that many different routes through the hierarchical menu structure of the present invention are contemplated based on individual customer selections. In this example, the customer selects "All Cars" **71**, which displays the car selection screen **80** shown in FIG. **8**. The choices offered here include "All Models" **82**, "Compact" **83**, "Mid-size" **84**, "Full Size" **85**, "Convertible" **86** and "Wagon" **87**. Desirably, images **200**, **205** of typical vehicles are also included. However, these images are not a required element of the practice of the present invention. The flow charts shown in FIGS. **8**A and **8**B illustrate the

logic steps associated with the car selection screen **80**. Note that each choice made is audio confirmed **82***a*–**87***a* as it is made. This screen and the screens that follow also incorporate a "Return to Main Menu" **110** selection to allow the customer to restart the query building process if desired.

A somewhat different screen will be displayed at this point if some other selection has been made at the main menu. For example, if a foreign car manufacturer was selected and that manufacturer did not have a wagon in its line, then no wagon selection would be offered. In other words, each screen at this level is customized for the offerings of the particular category of vehicle selected above. The selection could be further customized for the type of vehicles carried by a particular dealership. If a dealership carries no foreign car lines, then there may be no foreign car selection available.

The remaining steps in the query building process will be described in conjunction with the more condensed flow chart shown in FIG. **9**A. After making a selection at the car selection screen **80**, the customer is taken to transmission selection screen **90** shown in FIG. **9** where the customer will be prompted to make a transmission selection choice. If a particular transmission is not desired, the "All—Automatic or Manual" **92** selection is used. Otherwise, in this example, four popular configurations **94,96,98,99** are available. The choice of transmissions may be limited at this point based on the car line selected earlier n the process. For example, if a luxury car line having no manual transmission models is selected, no manual transmission options would be presented at this level. The audio prompt at this point may explain the benefits/features of each type of transmission/drivetrain configuration offered. The logic steps for the operation of the transmission selection screen are shown in Table 5 below.

TABLE 5

TRANSMISSION SELECTION SCREEN
● Display transmission selection screen.
● Play audio instruction.
● If return to last screen button pressed, then jump back one screen.
● If return to main menu button pressed, then go back to main menu screen.
● If sales consultant help selected, then contact linked salesperson that logged in customer.
● Otherwise, use the button pressed to continue building the query. Audio confirms each selection.

The next screen to be displayed is the vehicle year screen **115** shown in FIG. **10**. Again, images **200, 205** of available inventory are displayed to maintain customer interest. In similar fashion to that described above, the customer makes the desired choices from available selections **130, 132,134, 136**. The logic steps associated with the vehicle year screen are shown in Table 6 below.

TABLE 6

YEAR SELECTION SCREEN
● Display year selection screen
● Play audio instructions
● If return to last screen button pressed, then jump back one screen.
● If return to main menu button pressed, then go back to main menu screen.
● If sales consultant help selected, then contact linked salesperson that logged in customer. Play confirmation audio for each button pressed.
● Otherwise, use the button pressed to continue building the query.

The next selections are made on the price range screens **300, 400** (FIGS. **11, 11A**) where the customer further narrows the query by indicating how much he would like to pay for the vehicle. The system is flexible in that it provides the customer the option to enter a desired purchase price **302**, a desired monthly purchase payment **304**, or a desired monthly lease payment **308**. Some customers may not desire to limit their query by price at this point in the process. Accordingly, selection **301** displays the prices of all selected vehicles meeting the query limitations without regard to price. The customer may always use the "Return to Last Screen" **105** selection to step backwards through the process to limit the query by price after viewing a listing of all prices. Prices range screen **400** features keypad **405** used to enter the appropriate dollar amount **407**. The logic steps associate with the price range screens are shown in Tables 7 and 8 below.

TABLE 7

PRICE RANGE SELECTION SCREEN 1 (FIG. 11)
● Display price selection screen
● Play audio instructions.
● If return to last screen button pressed, then jump back one screen.
● If return to main menu button pressed, then go back to main menu screen.
● If sales consultant help selected, contact linked salesperson that logged in customer.
● If user selects view prices of all selected vehicles, display vehicles meeting user criteria.
● If desired purchase price selected, then display price range selection screen.
● If desired monthly payment selected, then display price range selection screen.
● If desired leasing monthly payment selected, then display price range selection screen.
● Audio confirms each selection by customer.

TABLE 8

PRICE RANGE SELECTION SCREEN 2 (FIG. 11A)
● Display price selection screen 2.
● Play audio instructions.
● If return to last screen button pressed, then jump back one screen.
● If return to main menu button pressed, then go back to main menu screen.
● If sales consultant help selected, then contact linked salesperson that logged in customer.
● Otherwise, wait for customer to enter an amount using the calculator keypad and press OK to proceed. Any amount is valid, except for zeros or no numbers entered.
● Audio confirms each selection by customer.

As each of these query elements are input by the customer, a query statement is generated by the terminal processor **10***a*. As will be obvious to one of ordinary skill in the art, a large number of permutations are possible for a query statement.

After a complete query **140** is formulated, terminal processor **10***a* searches inventory data **13** in storage device **12** for a selected inventory meeting the customers primary query. **182** (See FIG. **12**) If a match is found **182**, the system then checks for a minimum number of items **184** returned. When both those conditions are met, the system displays the vehicle selection screen **120** of FIG. **12**.

The selected inventory feature of the present invention includes two novel aspects to increase customer satisfaction. First, if none of the dealership inventory matches the customer query exactly, terminal processor **10***a* automatically modifies the primary query to create a secondary query **186** so that at least one vehicle is displayed. This secondary query **186** can be created by deleting query elements such as

transmission type or model year one at a time and conducting additional searches **188** of the database **12** between deletions. The progressively broader search will, at some point, return matching inventory items. An alternative method for broadening the query is to change the ranges for each search element. For instance, if cars within a certain price range have been selected, that price range will be expanded until inventory matches are made.

The second aspect of the selected inventory feature concerns the number of items returned in response to a query. The scope of the present invention includes selecting a minimum number of inventory items to be displayed in response to any query. For instance, the system could show at least ten vehicles for every query. If only four vehicles in current inventory match query elements, then additional items that come close to meeting those elements are displayed. A supplementary display may be provided to inform the customer that, for example, only four items were found that matched the query but that an additional six items are being shown that are similar. This second aspect of the selected inventory concept may be implemented by using the elements of the customer query as the mid point of a range to be searched. For example, the search of inventory data **13** for the primary query could be conducted in all cases to locate vehicles having a purchase price within $1,000 of the exact dollar value entered by the customer. Alternatively, the search based on monthly payments (for purchase or lease) could be conducted using a range of $50 around the exact amount entered by the customer. Desirably these ranges are increased as the amount of the selected purchase price or the monthly payment increases.

The practice of the present invention includes providing customers with comparative competitive makes of automobiles that, while not matching the customer query exactly, do come close to meeting customer preferences. For instance, if the customer has requested a selected inventory from a single auto maker, the query modification procedure discussed above would provide automobiles having similar characteristics from other lines in the dealership's inventory.

Turning now to FIG. **12A**, there is shown the selected inventory screen **120**. (See step **47** in FIG. **4**) As described above, the selected inventory is at least all vehicles that match the customer query exactly and could include additional similar vehicles. This screen displays basic information about each vehicle, which, in this non-limiting example, includes year, make, model, body type, color, engine, transmission, mileage and price. The customer may select individual vehicles for display of an image and more detailed information. If there are more vehicles to show than will fit on one screen, "Page Up" **125** and "Page Down" **126** keys are active on the screen. Desirably, the screen will also display the total number of screens available for viewing. The logic steps for the selected inventory screen are shown below in Table 9.

TABLE 9

INVENTORY SELECTION SCREEN
● Display selected inventory.
● Play audio instructions.
● If return to last screen button pressed, then go back one screen.
● If return to main menu button pressed, then go back to main menu screen.
● If there are multiple pages of vehicles for display, then display and make active page-up and page-down keys.
● If user touches the line where a vehicle is displayed, then display selected vehicle screen.
● Audio confirms each customer selection.

The customer then touches the description of a particular vehicle to see more detailed information as shown in the Selected Vehicle Screen **130** in FIG. **13**. This screen includes an image **160** of the vehicle along with either the purchase price or a monthly payment amount for a purchase/lease. (The screen in FIG. **13** shows a query based on purchase price.) These monthly payment amounts are estimates generated by the payment module **13** in response to data contained in the query statement formulated by the terminal processor **10***a*. An exact payment amount will be determined by the salesperson after he rejoins the customer. This screen displays a detailed list of features specific to the displayed vehicle. Highly desirable features may be highlighted with an asterisk, the use of a bold font or by some other suitable method. Drawing on the linked salesperson concept, this screen also prompts the customer to "Please ask your sales consultant for a test drive." **164** The system displays the name of the linked salesperson who logged the customer into the system initially. Thus, the customer's relationship with the salesperson is reinforced. The selected vehicle screen also gives the customer the option of printing a hard copy of the screen display. Logic steps for this screen are illustrated in Table 10 below.

TABLE 10

SELECTED VEHICLE SCREEN
● Display selected vehicle screen
● Play audio instructions.
● If return to last screen button pressed, then jump back one screen.
● If return to main menu button pressed, then go back to main menu.
● If sales consultant help selected, then go to final decision screen.
● If print selected, then print vehicle data/image. Upon completion of the print operation, the screen remains unchanged until the user selects one of the other options.
● Audio confirms each customer selection.

When the "Sales Consultant Help Key" **100** is selected from this screen, the final decision screen **140** is displayed. (See FIG. **14**) The final decision screen permits the customer to either test drive the vehicle selected **142**, obtain help from a sales consultant **100**, return to the main menu **110**, return to the selection screen, or obtain additional leasing information **146**. If return to selection screen **144** is selected, the customer is taken back to the vehicle selection screen where the selected inventory is again displayed. Logic steps for the final decision screen are shown in Table 11 below.

TABLE 11

FINAL DECISION SCREEN
● Display final decision screen
● Play audio instructions.
● If return to main menu selected, go back to main menu.
● If sales person help selected, contact linked salesperson with customer help message.
● If test drive button selected, contact linked salesperson with test drive message.
● If return to selection screen selected, go back to vehicle selection screen to display selected inventory.
● If additional leasing information selected, contact salesperson with additional leasing message.
● Audio confirms each customer selection.

A novel feature of the system of the present invention is the contact established with the linked salesperson in response to the selection of keys **100–146**. Terminal processor **10***a* initiates a command to communications device **15** via server **11** to contact the same salesperson **16** that logged the customer into the system at **40** in FIG. **4**. The identity of that linked salesperson is maintained in memory in the terminal processor **10***a* and recalled for this step. This

communication to the linked salesperson **16** may be accomplished in a number of ways. A preferred method is the use of a silent paging system. These systems are readily adaptable for use with computer systems and eliminate the use of noisy, ineffective overhead paging systems. A suitable system is marketed by Inter Page under the brand name ConneXions. This system will transmit numeric and alphanumeric messages to sales staff within a radius of up to one mile. The system features an interface with IBM compatible computers using Windows® paging software and the dealership's in-house telephone system. The ConneXions system's capability to send up to 50 preprogrammed messages permits a wide variety of customer help situations to be addressed.

If the "Sales Consultant Help" **100** key is selected, the linked salesperson is notified that the customer needs help to operate the system. If the "Test Drive" **142** key is selected the linked salesperson receives a different message indicating that the customer wants to test drive a vehicle. A different message is sent to the linked salesperson if the "Additional Leasing Information" key **146** is selected. In each instance, the linked salesperson has very specific information about the customers desires when he returns to the kiosk. The practice of the present invention includes providing other linked salesperson messages as appropriate for a variety of sales situations.

If no input is received from the customer in response to the final decision screen **140** after a specified time out period, the customer is automatically logged off **200** the system. (FIG. **4**)

An additional feature of the present invention is the provision of a management monitoring feature. As shown in FIG. **1**, management monitor **800** is tied in to server **11** to allow management personnel to track salesperson performance. For example, the monitor **800** could track each command to the communications device **16** to contact a linked salesperson **18** so that management could ensure that each customer request for help is answered. Alternatively, the communications device **16** could contact a member of management in addition to contacting the linked salesperson in response to a customer request.

The system of the present invention offers many advantages over the traditional methods for automobile transactions. First, the customer receives audio instruction for each step of the process and an audio confirmation of each selection made. This guidance makes the system "user-friendly" for those who may be put off by computer-assisted transaction systems.

Another advantage lies in the fact that the customer will always see some amount of current inventory no matter what her query contains. Accordingly, the customer is less likely to feel that the dealership does not have any vehicles that meet her needs. The positive feelings thus engendered will promote sales and repeat business The dealership benefits from monitoring queries that find no matches or that fail to find a minimum number of matches as a feedback source for maintaining inventory. If a specific type of vehicle is frequently requested but not available, the dealership can adjust its wholesale purchases accordingly.

Still another advantage of the system of the present invention stems from the ability to access the customer data and query results as the salesperson **18** and the customer close the transaction. To understand the advantages of the present invention, a typical automobile purchase must be described. In a typical prior art transaction, the customer and a non-linked salesperson gather in a small office where the salesperson completes paper contract forms by hand. Information concerning the selected vehicle is also hand entered, often with the assistance of notes scribbled by the salesperson on scraps of paper. The customer may have to wait while the salesperson walks out to the desired vehicle to collect information such as stock number or VIN information to complete this paperwork. This tedious process entails long waits while this paperwork is completed.

In the practice of the present invention, the salesperson would access the customer data and query results maintained in storage device **12** using an interface to a commercially available financing and insurance ("F&I") application **500**. These applications are well known in the automobile industry and readily available from many sources. A suitable application is the Computerized Automotive Technologies system 5V. The F&I package extracts customer data (name, address, phone number), selected inventory data (stock number, price, VIN, etc.), and selected query elements (monthly payment amount) via server **11** to complete contract forms and to determine exact monthly payment amounts reflective of any down payment and the customer's credit history. (As described earlier, the payment module **15** provides only an estimated payment amount.) Thus, the salesperson **18** has immediate access and the ability to display complete information concerning the selected vehicle and the customer. Moreover, all required forms may be computer generated after asking the customer to verify that the data provided at registration is correct.

It should be understood that the present invention has been described with a full set of features for a preferred embodiment. However, the invention may be practiced successfully without using each of those features. By way of non-limiting example, the audio instruction/confirmation or minimum inventory features could be deleted depending on the desires and needs of a particular dealership. Moreover, the invention could be practiced successfully without the interface to the check-in system, the F&I application and the management monitor. One of the advantages of the present invention is the ability to tailor the features to a particular dealership.

Although the present invention has been described with preferred embodiments, it is to be understood that modifications and variations may be utilized without departure from the spirit and scope of this invention, as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the appended claims and their equivalents.

The steps of the method disclosed for the present invention can be implemented by a computer programmer of ordinary skill in the art. A preferred embodiment of such an implementation is included herewith as Appendix A.

What is claimed is:

1. An on-site system for facilitating an automobile transaction for a customer comprising:

a) an input/display terminal adapted to form a multilevel customer query and to display responses thereto, the terminal including a terminal processor, wherein the terminal processor is adapted to create a link between the customer and a salesperson assigned to that customer;

b) a data server adapted to route a customer query from the input/display terminal to a storage device containing customer data, automobile inventory data, vehicle images, and video files, wherein the storage device is adapted to communicate to the input/display device via the data server a selected inventory responsive to the customer query;

c) a communications device for making a customer-initiated contact with the linked sales person from the input/display terminal via the data server.

2. The system of claim 1 further comprising a printer for printing information relating to at least one automobile from the selected inventory.

3. The system of claim 1 further comprising an interface between the storage device and an automobile check-in system wherein the interface updates the inventory data to include data relating to newly acquired automobiles as the newly acquired automobiles are received.

4. The system of claim 1 wherein the selected inventory is comprised of a minimum number of vehicles from the current automobile inventory.

5. The system of claim 1 further comprising an interface between the storage device and a financing and insurance application,

wherein the financing and insurance application is adapted to extract customer data and selected inventory information to determine exact monthly payments for the lease/purchase of an automobile from the selected inventory.

6. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) assigning a linked sales person to the customer;

b) providing a customer transaction kiosk including a display/input terminal and a terminal processor;

c) providing a storage device containing customer data, vehicle data, vehicle images, instructional audio, video, and a payment module;

d) creating a customer query containing parameters relating to a preferred automobile in the kiosk processor;

e) displaying a selected inventory at the input/display device; and

f) contacting the linked salesperson responsive to a customer-initiated request from the input/display device.

7. The method of claim 6 further comprising storing the customer query and associated selected inventory in the storage device.

8. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) providing a customer input/display terminal, the terminal including a terminal processor;

b) providing a storage device in communication with the input/display device via a data server, the storage device containing customer data, vehicle data, vehicle images, video files, audio files and a payment module;

c) generating a primary multilevel customer query in the input/display terminal processor;

d) displaying a selected inventory if the primary query returns a minimum number of vehicles from the current inventory;

e) generating a secondary query for comparative vehicles having similar characteristics to those meeting the primary query without further customer input in the input/display terminal processor if the primary query fails to return a minimum number of vehicles;

f) displaying a selected inventory comprised of vehicles meeting the secondary query if the number of vehicles from the secondary query equals a minimum number of vehicles;

g) repeating steps e) and f) until the number of vehicles from the primary and the secondary query equals a minimum number of vehicles to be displayed.

9. The method of claim 8 wherein the vehicle data is selected from the group consisting of model year, make, model, body style, color, stock number, VIN number, transmission type, engine type, location, mileage, price and vehicle features.

10. The method of claim 8 wherein the vehicle images are keyed to the corresponding vehicle by a selected item of vehicle data.

11. The method of claim 10, wherein the selected item of vehicle data is the VIN number.

12. The method of claim 8 further comprising storing the primary and secondary queries and associated selected inventories for each customer in the storage device.

13. The method of claim 8 further comprising accessing the customer data and the selected inventory via the data server from a financing and insurance application to determine exact monthly payments for the lease/purchase of an automobile from the selected inventory.

14. The method of claim 8 wherein the secondary query is generated by deleting a query level from the primary query.

15. The method of claim 8 wherein the secondary query is generated by modifying at least one of the primary query levels.

16. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) providing a customer transaction kiosk including an input/display terminal and a terminal processor;

b) providing a data server adapted to route a customer query from the input/display terminal to a storage device containing customer data, vehicle data, vehicle images, video;

c) creating in the terminal processor a customer query containing parameters relating to a preferred automobile in the kiosk processor;

d) executing the customer query to identify a selected inventory wherein the selected inventory comprises a predetermined minimum number of selected items from the current inventory database and sufficient additional items outside the customer parameters to meet the minimum number if fewer than the minimum number exist in the inventory; and

e) displaying the selected inventory at the input/display device.

17. The method of claim 16 further comprising:

a) displaying a list of available salespersons on the input/display device; and

b) contacting a customer-selected sales person from the list via a communications device.

18. The method of claim 16 further comprising:

a) displaying a group of images of available sales persons; and

b) contacting a customer-selected sales person from the group via a communications device.

19. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) providing a customer input/display device;

b) providing a storage device in communication with the input/display device via a data server, the storage device containing customer data, vehicle data, vehicle images, video files, and audio files;

c) generating a multilevel customer query in the input/display device;

d) playing an audio instruction before each level of the primary query is generated by the customer and playing an audio confirmation after each level is generated; and

e) displaying a selected inventory.

20. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) providing a customer transaction kiosk including an input/display terminal and a terminal processor;

b) providing a data server adapted to route a customer query from the input/display terminal to a storage device containing customer data, vehicle data, vehicle images, and video;

c) creating a customer query containing parameters relating to a preferred automobile in the kiosk processor;

d) displaying a selected inventory at the input/display device;

e) storing the customer query and selected inventory; and

f) accessing the customer data, customer query and the selected inventory via the data server from a financing and insurance application to determine exact monthly payments for the lease/purchase of an automobile from the selected inventory.

21. A method for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) assigning a linked sales person to the customer;

b) providing a customer transaction terminal including a input/display terminal and a terminal processor;

c) providing a storage device containing customer data, vehicle data, vehicle images, instructional audio, video and a payment module;

d) creating a multilevel customer query containing parameters relating to a preferred automobile in the terminal processor;

e) executing the customer query to identify a selected inventory comprised of a predetermined minimum number of selected items from the current inventory database and sufficient additional items outside the customer parameters to meet the minimum number if fewer than the minimum number exist in the inventory;

f) displaying the selected inventory at the input/display device;

g) contacting the linked salesperson responsive to a customer-initiated request from the input/display terminal; and

h) storing the customer query and selected inventory in the storage device.

22. A system for facilitating an automobile transaction for a customer comprising:

a) an input/display terminal adapted to form a customer query, the terminal including a terminal processor, wherein the terminal processor is adapted to create a link between the customer and a salesperson assigned to that customer;

b) a data server adapted to route the customer query from the input/display terminal to a storage device, wherein the storage device is adapted to communicate to the input/display terminal via the data server a selected inventory responsive to the customer query; and

c) a communications device connected to the data server for making a customer-initiated contact with the sales person using the link between the customer and the sales person.

23. The system of claim 22 wherein the storage device contains customer data, automobile inventory data, vehicle images, audio files and video files.

24. The system of claim 22 wherein the storage device contains automobile inventory data, vehicle images, audio files and video files and wherein the terminal processor further comprises a storage device containing customer data and video files.

25. A system for facilitating an automobile transaction for a customer comprising:

a) an input/display device adapted to form a customer query containing parameters relating to a preferred automobile;

b) a storage device containing automobile inventory data; and

c) a data server adapted to route a customer query from the input/display device to the storage device, to execute the customer query so as to create a selected inventory by determining whether a predetermined minimum number of automobiles from the inventory data meet the parameters and adding additional automobiles outside the parameters if fewer than the minimum number exist in the inventory data, and to communicate to the input/display device the selected inventory.

26. A system for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) a customer transaction kiosk including an input/display terminal and a terminal processor;

b) a storage device containing customer data, current inventory data, vehicle images, audio files and video files; and

c) a data server adapted to route a customer query from the input/display terminal to the storage device; to create a customer query containing parameters relating to a preferred automobile in the kiosk processor; to execute the customer query and create a selected inventory by determining whether a predetermined minimum number of inventory items meet the parameters and adding at least one additional item outside the parameters if fewer than the minimum number exist in the inventory; and to display the selected inventory at the input/display terminal.

27. A system for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) a customer input/display device;

b) a storage device in communication with the input/display device, the storage device containing customer data, vehicle data, vehicle images, video files, and audio files;

c) a data server in communication with the input/display device and the storage device for generating a multilevel customer query in the input/display device, playing an audio instruction before each level of the query is generated by the customer, playing an audio confirmation after each level is generated; and displaying a selected inventory.

28. The system of claim 27 wherein the customer data and the video files are stored in a storage device contained in the input/display device.

29. A system for facilitating an automobile purchase transaction between a customer and an automobile dealership comprising:

a) a customer transaction kiosk including an input/display terminal and a terminal processor;

b) a storage device containing customer data, vehicle data, vehicle images, and video;

c) a data server adapted for creating a customer query containing parameters relating to a preferred automobile; routing the customer query to the storage device; displaying a selected inventory at the input/display device; storing the customer query and selected inventory; and

d) an interface between the data server and a financing and insurance application for determining exact monthly payments for the lease/purchase of an automobile from the selected inventory using the stored customer query and selected inventory information.

30. A system for facilitating an automobile transaction for a customer comprising:

a) an input/display terminal adapted to form a multilevel customer query and to display responses thereto, the terminal including a terminal processor, wherein the terminal processor is adapted to create a link between the customer and a salesperson assigned to that customer;

b) a storage device containing inventory data;

c) a data server adapted to route a customer query from the input/display terminal to the storage device, and to communicate to the input/display device a selected inventory responsive to the customer query, wherein the selected inventory is comprised of a minimum number of vehicles from the current automobile inventory;

d) an interface between the storage device and an automobile check-in system for updating the inventory data to include data relating to newly acquired automobiles as the newly acquired automobiles are received;

e) an interface between the storage device and a financing and insurance application, wherein the financing and insurance application is adapted to extract customer data and selected inventory information from the storage device to determine exact monthly payments for the lease/purchase of an automobile from the selected inventory;

f) a communications device connected to the data server for making a customer-initiated contact with the sales person using the link between the customer and the sales person.

31. The system of claim **30** further comprising a printer for printing information relating to at least one automobile from the selected inventory.

32. The system of claim **30** wherein the selected inventory comprises a minimum number of selected automobiles from the automobile inventory to include additional automobiles outside customer parameters if fewer than the minimum number of automobiles meeting customer parameters exist in the inventory.

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